DOCUMENT RESUME

ED 046 255 24 EM 008 684

TITLE	Public Broadcasting Environment Center. Final Report.
INSTITUTION	Corporation for Public Broadcasting, Washington, D.C.; Public Broadcasting Environment Center, Washington, D.C.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C. Bureau of Research.
BUREAU NO	BR-0-0651
PUB DATE	30 Nov 70
GRANT	OEG-0-703910(508)
NOTE	635p.
EDRS PRICE	EDRS Price MF-$0.65 HC-$23.03
DESCRIPTORS	*Broadcast Industry, *Ecology, Educational Finance, Educational Radio, Educational Television, *Education Service Centers, *Environment, Estimated Costs, Financial Needs, Manpower Development, Manpower Needs, Pollution, Public Education, Public Policy
IDENTIFIERS	Corporation for Public Broadcasting, PBEC, *Public Broadcasting Environment Center

ABSTRACT

Created in 1970 to apply the capabilities of public broadcasting to the challenge of environmental education, the Public Broadcasting Environment Center (PBEC) has completed its first planning phase. Goals and objectives have been determined; strategies for action have been envisoned; radio and television programs have been planned; manpower training information, orientation, and technical assistance have been estimated, and funding is being sought. Phase I activities of PBEC are described and 11 projects are reported on. These reports are concerned with surveys, information services, advisory bodies, target audience characterization, project objectives, administration, production of programs, communications, manpower training and coordination, environmental education, and environmental action. "Exhibits" are interspersed in the reports. (MF)

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FINAL REPORT
Project No. 0-0651
Grant No. OEG-0-703910-(508)

PUBLIC BROADCASTING ENVIRONMENT CENTER

Corporation for Public Broadcasting
888 Sixteenth Street, N.W.
Washington, D.C. 20006

November 30, 1970

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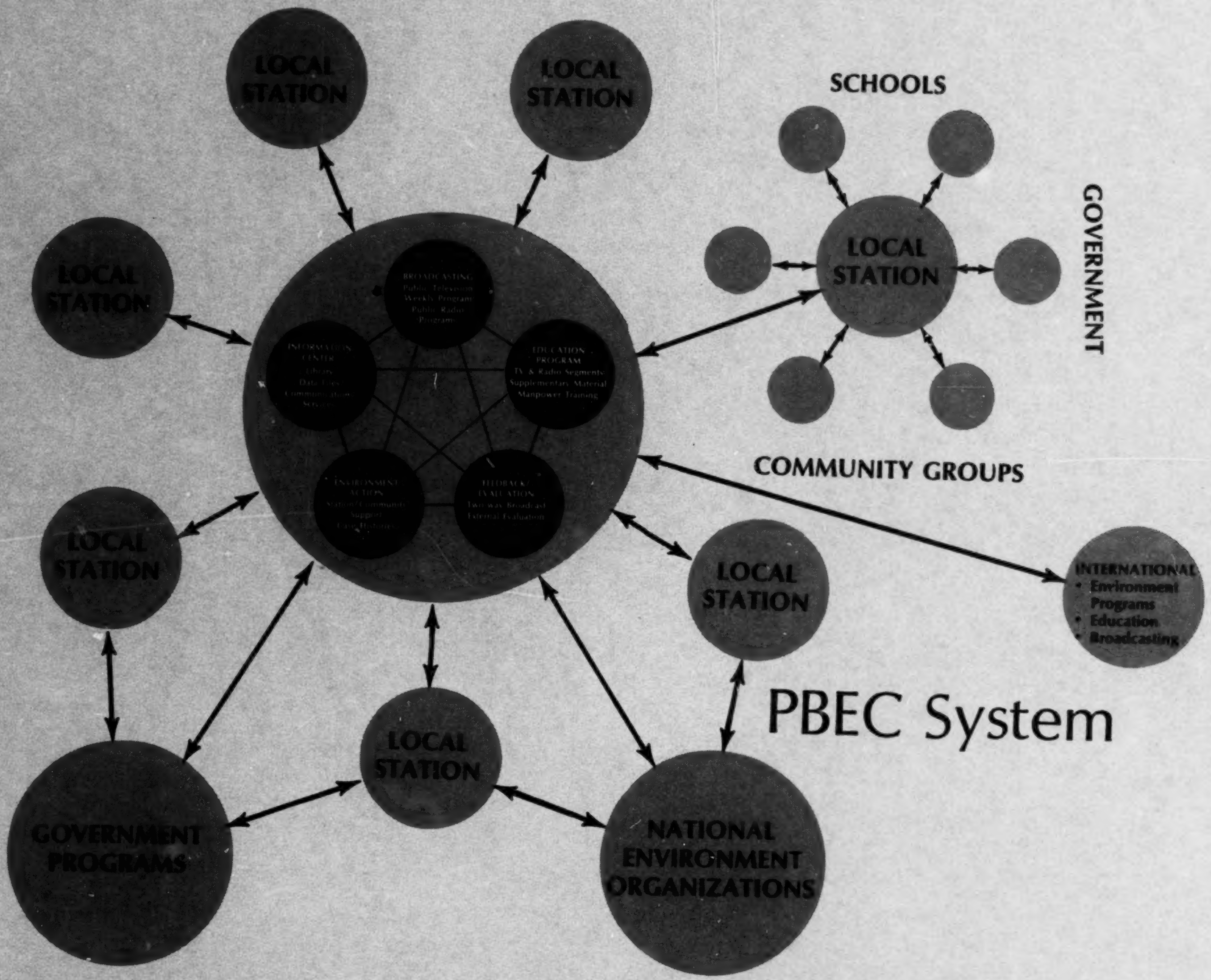

PBEC System

LOCAL STATION
LOCAL STATION
SCHOOLS
GOVERNMENT
LOCAL STATION
LOCAL STATION
BROADCASTING
Public Television
Weekly Program
Public Radio
Programs
INFORMATION CENTER
Library
Data Files
Communications
Services
EDUCATION PROGRAM
TV & Radio Segments
Supplementary Material
Manpower Training
ENVIRONMENT ACTION
Station/Community
Support
Case Histories
FEEDBACK/ EVALUATION
Two-way Broadcast
External Evaluation
COMMUNITY GROUPS
LOCAL STATION
LOCAL STATION
INTERNATIONAL
• Environment Programs
• Education
• Broadcasting
LOCAL STATION
GOVERNMENT PROGRAMS
NATIONAL ENVIRONMENT ORGANIZATIONS

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PUBLIC BROADCASTING ENVIRONMENT CENTER

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November 30, 1970

Mr. John W. Macy, Jr., President
Corporation for Public Broadcasting
888 Sixteenth Street, N.W.
Washington, D.C. 20006

Dear Mr. Macy:

The Public Broadcasting Environment Center has completed its six-month planning period. In accordance with your "Delegation of Authority," dated May 12, 1970, I am sending to you our Final Report for forwarding to the U.S. Office of Education.

As the Report describes, we have accomplished the specified tasks within the $600,000 made available and within the time required. And we accomplished considerably more. We have organized PBEC and developed the staff and plan of operation requested; made the necessary surveys and investigations with our own staff and through consultants; and, with this Report, we outline a program which would thoroughly justify the initial interest and concern of the Office of Education and the Corporation for Public Broadcasting that led to the creation of PBEC.

Our very planning activities have generated reaction among public broadcasting stations and environmental and educational groups which demonstrates clearly the need and the potential impact of an organization such as PBEC. At the same time, government and industry sources have shown an eagerness to become partners in our efforts. The momentum we have thus gained, with an enthusiastic staff and a solid research base, recommends going forward with considerable energy.

Specifically, the desire of public television and radio stations to initiate sustained environmental programming; the interest of educational institutions in making innovative, high-impact efforts toward environmental education; and the remarkable pressures from local communities for help in organizing environmental activities, often led by and focused on the local public broadcasting station, is at once a heartening discovery and a distinct challenge.

We on the PBEC staff have found this six-month experience to be as enlightening and exciting as one could hope for, especially because we are on the cutting edge of the Nation's and the world's worst problems and best opportunities. Our staff, balanced with educators, environmentalists, communicators and administrative and systems experts, is eager to get the go-ahead signal to respond to a national mandate to develop an intelligent response to urgent human problems.

Sincerely,

Wayne Miller

Wayne Miller
Executive Director

WM/lgt

FINAL REPORT
Project No. 0-0651
Grant No. OEG-0-703910-(508)

PUBLIC BROADCASTING ENVIRONMENT CENTER

Corporation for Public Broadcasting
Washington, D.C. 20006

November 30, 1970

The research reported herein was performed pursuant to a grant with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

U.S. DEPARTMENT OF
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Office of Education
Bureau of Research

"To assure a sustained educational effort through the media, the U.S. Office of Education, Department of Health, Education, and Welfare, awarded funds to the Corporation for Public Broadcasting to establish an Environment Center. The Center will provide television programs and radio materials designed to increase public awareness of environmental education and train others for careers in environmental management industries."*

---

* Environmental Quality - First Annual Report of the Council on Environmental Quality, August 1970, page 223.

PUBLIC BROADCASTING ENVIRONMENT CENTER

1030 Fifteenth Street, N.W.

Washington, D. C. 20005 (202) 833-1320

FOREWORD

This Final Report of the Public Broadcasting Environment Center consists of one volume, accompanied by about 75 Exhibits. The Table of Contents follows immediately after this page. The Report of PBEC's work during Phase I, findings and description of a plan for operations is contained in the Overview, pages 1 through 116. This includes summaries of the eleven specific tasks required by the initial PBEC proposal for a six-month planning phase. The full reports on these eleven tasks are found in Appendixes I through XI, beginning on page 117.

At the end of this volume is a list of Exhibits. They represent support documents such as surveys, consultant reports and environmental and broadcasting state-of-the-art papers. Some of the Exhibits are attached directly to their Appendixes in this volume and are marked accordingly. The other Exhibits are separate from this Report and are readily available to those authorized persons who wish to see them. They are referred to throughout the Report.

TABLE OF CONTENTS

Overview page

Introduction 1

Goals, Objectives & Conclusions 3

Strategies for Action 7

Products & Services 19

Funding & Budget 25

Phase I Activities 31

Environmental Priorities - A PBEC View 39

The Advisory Council 45

PBEC Planning Committee 48

Project Summaries:

- Introduction 51
- I. Surveys 53
- II. Information Services 59
- III. Advisory Bodies 61
- IV. Target Audience Characterization 63
- V. Project Objectives 67
- VI. Administration 71
  - A. Management System 71
    - 1. Planning 72
    - 2. External Evaluation 77
    - 3. Management Control and Internal Evaluation 83
  - B. Organization & Staffing 91
  - C. Administrative Policies & Procedures 95
- VII. Production of Programs 97
- VIII. Communications 101
  - A. Communications Services 101
  - B. Public Affairs 102
- IX. Manpower Training & Coordination 103
- X. Environmental Education 107
- XI. Environmental Action 113

Appendixes page

I. Surveys 119

II. Information Services 145

III. Advisory Bodies 171

IV. Target Audience Characterization 215

V. Project Objectives 239

VI. Administration 259
  A. Management System 263
    1. Planning 263
    2. External Evaluation 281
    3. Management Control & Internal Evaluation 312
  B. Organization & Staffing 343
  C. Administrative Policies & Procedures 355

VII. Production of Programs 417

VIII. Communications 449
  A. Communications Services 453
  B. Public Affairs 459

IX. Manpower Training & Coordination 463

X. Environmental Education 487

XI. Environmental Action 629

Exhibit Index 673

INTRODUCTION

The Public Broadcasting Environment Center was created June 1, 1970 in response to a massive problem of world proportions. The condition of the environment threatened the very future of man and his world. Widespread environmental awareness and responsibility had to be developed quickly. New comprehensive communication techniques and educational tools were needed.

Thus, in an attempt to meet this need, the unique capabilities of public broadcasting were applied to the broad challenge of environmental education.

This Report of the Public Broadcasting Environment Center describes the activities of the past six months which were aimed at identifying the dimensions of the problems and the conclusions which PBEC reached to meet these problems.

The Final Report responds to the two specific Objectives cited in the May 1, 1970 research proposal for PBEC, which said (page 5):

> "Throughout the six-month planning Phase I of this project, two major objectives will be pursued:
>
> 1. The development of a comprehensive plan of action through which public broadcasting can take the further steps necessary to achieve the environmental educational aims outlined above.
>
> 2. The establishment of a viable institution to serve the needs of identified target populations in carrying out plans and programs to achieve the aims outlined above."

The plan which was developed centers on the concept of an environmental educational system—the PBEC System—which involves public radio and television stations, community groups, schools, national and international environmental organizations and government agencies.

PBEC would serve as the central link of an interconnected network stimulating and providing a flow of factual environmental information and organizational support. PBEC would supply the current information and data needed for effective action. This information would be drawn from the most authoritative sources—in the fields of ecology, education, science, social and behavioral sciences, the arts and humanities, architecture, planning, communications, industry and government. PBEC would communicate with other parts of the System to deliver this information, assist in its constructive use, and feed back results and experiences for improved effectiveness and citizen participation.

The products and activities contemplated to achieve PBEC goals include television and radio programs for general and specific audiences, special educational programs and support materials and teacher training efforts, an evaluation and research capability, a communications services network, a grant program to support local broadcasters' environmental efforts in programming, education, manpower training and community action projects and an administrative structure to bring order and harmony to all these endeavors.

The ambitious goals laid down here require as diverse a plan of action as the diversity of the problems perceived. The PBEC System is designed to so organize and launch the campaign that a significant and constructive result will be achieved.

The task cannot be approached with a crusader's zeal which ignores past human achievement. We have built a technological society to attain what seemed to be perfectly reasonable goals. Now we must deal reasonably with the world we have made, acknowledging the economic tradeoffs we must encounter, recognizing the price we may have to pay to protect our health and well-being.

The details of PBEC activities during the planning phase, and the activities that would be needed to achieve its goals for the first-year operational period, follow in this Report to the U.S. Office of Education.

> "For all of man's progress in science and philosophy, he has behaved for most of his time on earth as though he and his actions were exempt from the natural laws that govern his ecosystem. Of all living things, man alone is capable of creatively cooperating with the natural processes to insure his continued survival and progress." *

---

* Environmental Health Problems, booklet published by Environmental Health Service, U.S. Department of Health, Education, and Welfare, 1970.

GOALS, OBJECTIVES AND CONCLUSIONS

"There is one web of life and we are part of it.

The web is in trouble.

We can do something about it." *

Goals

The goals of the Public Broadcasting Environment Center, through the use of the unique capabilities of television, radio and related efforts, are:

To respond to the national mandate to raise the level of knowledge and understanding of the environmental status and to present viable alternatives;

To create an innovative system of environmental education to reach large and diversified audiences quickly at the primary, secondary, higher and continuing education levels;

To increase perception of the environment as a totality; to communicate an understanding and recognition of the fundamental interdependence of all its parts, including man himself; and to stimulate the action necessary for man to move toward what he perceives to be a more desirable condition of life.

---

*Wayne Miller, Environmental Awareness Program, National Park Service, Department of Interior, 1969.

Objectives

1. To increase the capabilities of public broadcasting, radio and television and appropriate supporting media and methods.
2. To encourage local interaction among parents, students and community emphasizing citizen participation in an environmental education process, using the capabilities of an integrated PBEC System.
3. To develop and deliver environmental education programs for environmental awareness and understanding for the broadest possible audiences including general audiences as well as specific audiences, such as students, teachers and other special interest or need groups.
4. To develop a communications service capable of locating, processing and delivering environmental information to public broadcasting stations and other institutions, both governmental and private, as well as to individuals.
5. To develop and utilize an evaluation (and research) capability necessary to improve internal operations and planning; to determine external program impact and effectiveness, expressed in quantitative, qualitative and behavioral terms where possible; to seek expressive feedback from audience participation through the PBEC System.

Conclusions

Having engaged in the research, surveys and other investigation required in the Proposal for Phase I, PBEC concludes:

There is a need for an effective communications system to:

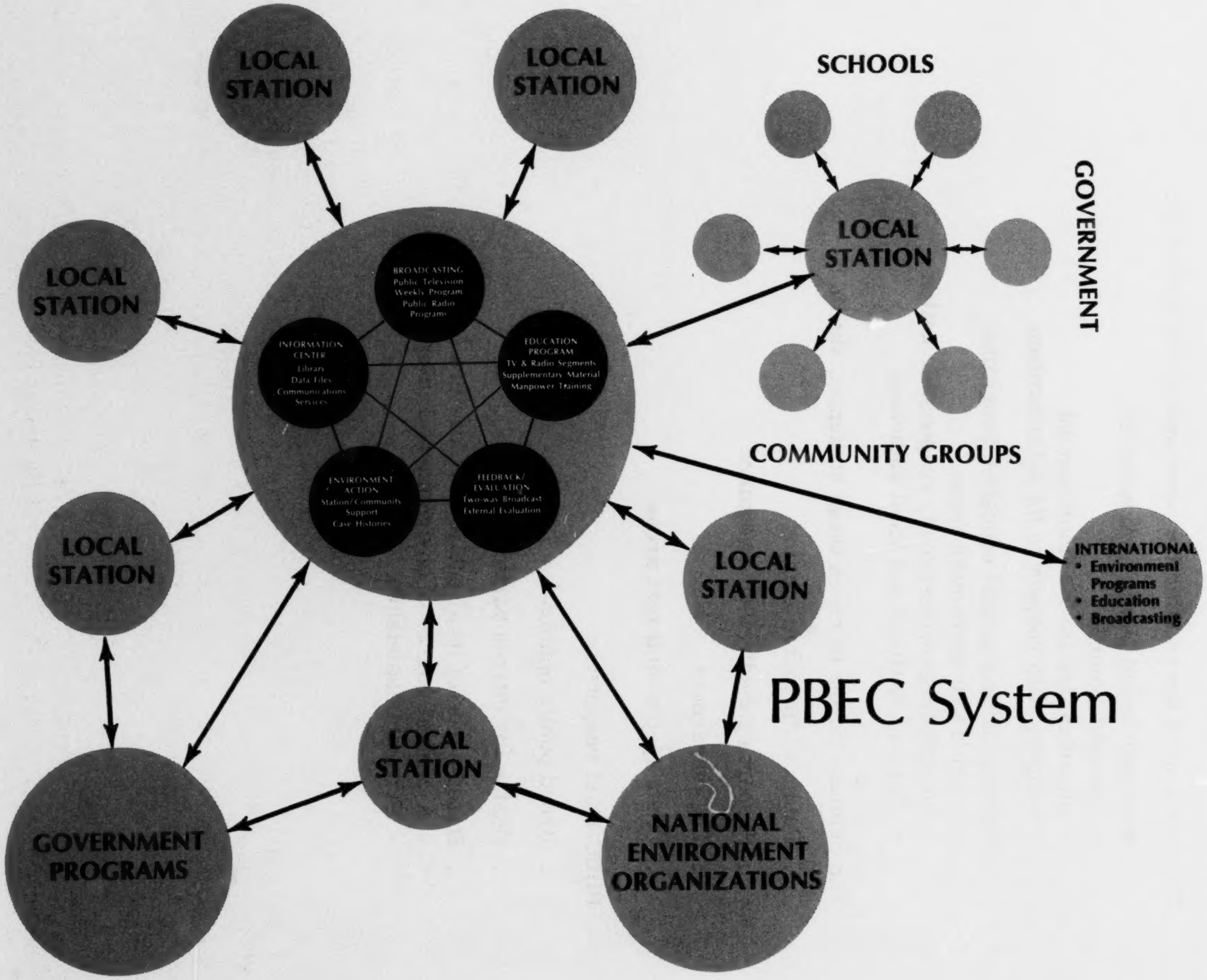
- Stimulate broad public awareness of:
  - The environment
  - Opportunities for its improvement
  - Dangers with respect to its deterioration
- Develop environmental education programs:
  - To give that awareness focus
  - To encourage widespread, responsible action
  - To reach national and local audiences

The primary means to reach these audiences should be:

- Public radio and television
- Supporting media where required
- The classroom
- Other special-interest areas

PBEC must respond to:

- Broad public opinion
- Desire for citizen participation
- Stated needs of local public broadcasters for:
  - A central source of environmental information
  - Program assistance



LOCAL STATION
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BROADCASTING
Public Television
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EDUCATION PROGRAM
TV & Radio Segments
Supplementary Material
Manpower Training
ENVIRONMENT ACTION
Station/Community
Support
Case Histories
FEEDBACK/ EVALUATION
Two-way Broadcast
External Evaluation
COMMUNITY GROUPS
LOCAL STATION
LOCAL STATION
INTERNATIONAL
• Environment Programs
• Education
• Broadcasting
LOCAL STATION
GOVERNMENT PROGRAMS
NATIONAL ENVIRONMENT ORGANIZATIONS

PBEC System

STRATEGIES FOR ACTION

Unlike most public or private problems, which can be isolated and identified for an organized unique solution, the condition of the environment is a massive, worldwide disorder. The scale of this problem demands massive, imaginative and unconventional solutions.

Television and radio are instruments for massive communication. Such mass communication, incorporating innovative educational concepts with educational techniques already in use on a local and institutional basis, have suggested the possibility of creating a "wholesaling" educational function, not now available, through the use of the public broadcasting network.

To activate such a wholesaling function it is necessary to consciously link education elements with the network of television and radio stations that make up public broadcasting throughout the country and with an intelligence center such as is proposed in the PBEC proposal.

At present educational institutions, local educational systems, and even state systems, essentially "retail" education materials. Their role is to detail and design, for individual and unique use, the materials that are used in the various school systems.

Perhaps a new approach to mass education may be found through use of public broadcasting concentrated on the environment. If it succeeds, its use on other issues would become entirely reasonable.

PBEC System

To explore and attempt to create this educational "wholesaling" concept, this Public Broadcasting Environment Center Report envisions an integrated PBEC System—an interactive communications network which takes environmental information to a broad national constituency through local broadcasting stations and feeds back reaction and effect in a pattern which permits evaluation and improved future programming. The PBEC System concept is a comprehensive environmental education process which includes the central PBEC core for administration, evaluation and coordination and the local stations and community organizations for widespread action programs and local evaluation.

In a solar-system design, all aspects of environmental education, from pre-school to adult education, relate to the already interrelated functions of PBEC—communications, information, television and radio broadcasting and support of local station activities.

The action program for PBEC's first year in Phase II would involve development of the PBEC System and support of its activities.

Establishment of Center

Were PBEC to receive the necessary funding to enable it to move from the program planning and development phase to the program production phase, it would become a permanent organization dedicated to improving the quality of public broadcasting as well as to the goals and objectives described elsewhere in this Report. This would be the first step in creating the core of the PBEC System.

Staffing of the Center would be based on and expanded from personnel already acting on Phase I activities. Divisions would be created to support the central theme of PBEC operations: The PBEC System, communications and information, environmental education, environmental action, evaluation and planning and administration.

PBEC would continue to be located in Washington, D.C., in order to be close to sources of information, national programs, government funding and major environmental activity, public and private.

Operations

This Report has outlined the goals, objectives and conclusions that were defined during PBEC's planning phase. The various tasks which were performed as required in the initial proposal are described in detail, first in summary form beginning on page 51 and again in the Appendixes beginning on page 117.

Figures 1 and 2 at the end of this "Strategies for Action" section (pages 16 and 17) show in graphic form the activities and timetable envisioned by PBEC for the first year of Phase II.

Four principal activities, discussed here in order of their implementation, will be required to support the System:

Communications
Educational Operations
Evaluation and Planning
Administration

Many of these activities, such as development of a library, identification of professional talent and production resources and discussion with local stations and communities regarding their needs and interests in the environmental field, have already begun during the planning phase. This early activity will facilitate organization of the PBEC System and ensure that PBEC is operational immediately following funding authorization for its program implementation phase.

It should be noted that the entire system is designed to provide the maximum educational impact on environmental matters, a great deal of feedback from the local audiences and an opportunity for individuals in these audiences—students, adults, housewives, businessmen—to be heard in the national dialogue.

Communications

To get the PBEC System connected and to insure a flow of pertinent, useful and accurate environmental information to local public broadcast stations and other interested users, PBEC will immediately establish its Communications Services Division. Staffed by editors, reporters and environmentalists, the division will communicate by telephone, mail and other appropriate means with all 198 television stations and 96 radio stations. Environmental news and developments will be reported on; requested research for environmental programs will be provided to local stations and data on radio and video tapes, scripts, program ideas and other material will be furnished. Communications Services should be able to respond to inquiries and requests from local public broadcasters and other qualified users within three months of the beginning of System development. Users then will be encouraged to query the division on environment matters. Meanwhile, careful lines of communication will be laid to environmental information sources, national and international, and a network of experts in the environmental field will be developed and kept alive by continuous contact, personal and otherwise. An "Expert File" will be maintained.

Example. An example of how Communications Services might be used: A local station decides to produce a program on water pollution in its community. It needs substantive research on the basic problems involved, the most current state-of-the-art, who is developing innovative solutions to similar problems, etc. The station does not have its own research facilities. It queries PBEC for the necessary background papers, story ideas and other technical assistance. PBEC, using its library and other resources, prepares background papers, possibly a script and perhaps suppliers, at the station's expense, a producer and/or writer.

This example responds to findings PBEC has made during its planning phase: that local stations need and want this type of technical assistance, without which they are unable to commit themselves to environmental programming.[1]

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1. See NAEB survey of public television and radio stations, Appendix I.

Communications Services will be the principal user of PBEC's library and electronic data processing resources. During the planning stage, it was found that there are no reliable central reference sources for the data needed for PBEC's support activities, so a library and information system are being developed by PBEC.[2]

Later in the year, when the PBEC System has become operative to produce local environmental action programs, Communications Services will also serve as a data exchange for workable environmental action programs, ideas, transferable program elements and nationally useful local action material, including political, statutory and financial information.

In about the third month of operation, Communications Services will provide news material for daily five-minute radio programs on public radio and, later in the year, news background for television use.[3]

PBEC also will immediately set up a Public Affairs division to maintain contact with other media and with Congressional and other Government sources. The Public Affairs division will contract out an advertising operation which will be timed for use before launching national radio and television programs.[3]

Educational Operations and the PBEC System

PBEC Local Station Grants - A vital initial activity in establishing the Public Broadcasting Environment Center System is to develop and maintain a close liaison with the 198 public television stations and 96 CPB-qualified radio stations to encourage local environmental education action. Immediately after organizing, PBEC will contact all public broadcasters and offer each an opportunity to apply for a small "Environmental Action Preparedness Grant." Interested stations will use the grants to develop their plans to encourage environmental education programs, manpower training projects and environmental action locally by cooperating with local educational institutions, government agencies and community action groups.

PBEC will evaluate the local station "Preparedness Reports" to identify viable local station-community relationships and then provide appropriate "Environmental Action Planning Grants" to qualified stations. These stations (with technical assistance provided by PBEC and independent experts) will develop specific plans detailing local environmental action in collaboration with local educators, local governments, and community action organizations. The plans, describing how the local stations will serve as agents of environmental change through formal and informal education, manpower training, and other community actions, will be evaluated by PBEC through a panel of recognized consultant experts,[4] and disseminated where desirable.

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[2] For discussion of the Phase I investigation of information resources, see Appendix II.

[3] For discussion of news and public affairs programs, see Appendix VIII.

Local stations whose plans are selected will then be given "Environmental Action Implementation Grants." Thus, some local stations and their community associates should be in action for environmental change as early as four months after PBEC becomes operational.[5] The local stations will be required to evaluate their own program progress and effectiveness, assisted by independent and objective evaluation agents and advisory consultants, acting through PBEC's external evaluation process.

Education - All PBEC activities will contribute to national environmental awareness, knowledge and action; but of special importance are the PBEC programs directed specifically to environmental education at the primary and secondary school level. To help develop in students and their parents personal environmental awareness, values and action, radio and television programs and other materials will be planned, produced, pilot-tested, and released to selected school systems for use and evaluation. Television series, entitled "Ways It Is" and "Ways To Go," and a radio series, "Byways," will be designed and evaluated to induce a living/learning orientation toward environmental perceptions and literacy, environmental facts and values, and environmental issues and immediacies. The "Ways To Go" television effort will be a segment of the planned hour-long weekly TV program (see below), which can be used for a large national audience and reused in the classroom with additional impact materials.[6]

The audio/visual packages will be supplemented by an educational materials package ("Pathways") to augment the impact of the audio/visual experience.

In the first year materials with the highest educational impact will be developed for elementary level age groups, high school programs and for teacher training. These materials in turn will be field-tested in various political, geographical, and broadcasting regions. Release of these materials to all regions will follow. The development of similar materials for other specific age groups and for other occupational and discipline needs and opportunities is planned.

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[4] Appendix VI. A. 2., External Evaluation, discusses in detail various forms of objective, program-improving evaluation techniques.

[5] Phase I planning activity has already located for PBEC a number of potentially effective environmental community action models involving diverse population groups. For details, see Appendix XI and its Exhibits.

[6] The planned television program and scheduling are discussed in Appendix VII.

The PBEC environmental education program will include provision for teacher training and orientation for greater environment awareness, cooperating with local school systems and state educational systems.

Program development, testing and evaluation will be conducted by independent and objective professionals, assisted by expert advisory panels. For testing purposes, early program release and distribution will be coupled with evaluation so that immediate revising and development of program format may take place to produce the desired educational objectives. Evaluation will be conducted in statistically significant sample areas, such as a political region (state or county), a geographic area (watershed or ecosystem) and a broadcast area covered by a station or a regional network.[7]

Current plans call for educational program development to begin in the first month, pilot production contracts to be let in the third month, pilot tests to start in the sixth month, production to start in the seventh month, and release and distribution to begin in the tenth month, in time to reach primary and secondary shcool children early in the 1971-72 school year.

Manpower training techniques and programs will be developed along with other educational efforts.

PBEC Television Series - Immediately after PBEC becomes operational, detailed conceptual and product planning for a one-hour, magazine-format (i.e., segmented into a veriety of themes, such as music, comedy, history, short spots, etc.), 52-week television series "The Quality of Life" (working title) will begin. Assisted by planning and production contractors, PBEC will prepare and test an entertaining, provocative, and attractive program series appealing to a national television audience. Certain segments, while interesting to all viewers and so serving to increase national environmental awareness and literacy and encourage personal and local environmental action, will be targeted for special audiences, such as urban or rural audiences, racial or ethnic minorities and social and economic constituencies.

Further, many of the show's segments will be readily adaptable for re-use in schools, community action programs, local station programming, manpower training, youth groups and like uses. Such re-use will be facilitated by the development of the PBEC System described above. Similarly, exciting local program elements developed under PBEC's Environmental Action Implementation Grants can be quickly incorporated into the "Quality of Life" series to illustrate for national audiences that it is possible for Americans to cope with environmental problems.

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[7] Full description of environmental education plans is found in Appendix X. Evaluation techniques are discussed in Appendix VI A 1.

The "Quality of Life" series will premiere eleven months after PBEC becomes operational. The series will use drama, comedy, news, conversation, art, music, dance, reason and rhetoric to encourage a greater environmental awareness.

To bring the PBEC message quickly to America, television and radio spots and news programs will be immediately planned, produced and broadcast. Some will be aired within sixty days of PBEC's operational authorization. One-minute, five-minute and fifteen-minute segments will serve to: promote nationally the "Quality of Life" show; excite local interest in community action through local station support; create awareness of critical environmental threats ("environmental alerts") and inform by means of continuing news and special programs. These segments, too, become immediately available to supplement local formal and informal education, broadcasting and action programs.

Evaluation and Planning

The PBEC Information Service will research and manage environmental data for users inside and outside PBEC. The evaluation function will measure and evaluate internal PBEC activities and PBEC's external impact; more importantly, it will relate PBEC's external effectiveness to internal performance and, where possible, assess effectiveness and accountability on a quantitative basis. The function will provide PBEC's management with constantly updated information on management decisions and synthesize that information into the short- and long-range systems plans required to attain PBEC's goals and objectives.

To attain these objectives, immediately after funding authorization, PBEC will begin the following activities:

Management Controls - Establish and operate with contractor support a management control system to collect, manage and analyze internal resource utilization information. When considering this internal evaluation function, PBEC's other operational activities (Environmental Education; PBEC System; Program Development and Production; Communications Services; and Administrative Services) will participate in criteria establishment and performance evaluation. The evaluation and planning function will provide a method and make available to PBEC management the information required for effective management control.

External Evaluation - PBEC will establish and operate with contractor and consultative support a system to evaluate PBEC's impact upon general and specific audiences and upon the environment as a result of PBEC products and services. A common methodologic approach will be used for evaluating all of

PBEC's external impacts, although specific approaches will be required for each activity and are detailed elsewhere.[8] An overall evaluation system (a "conceptual model") will establish, where possible, quantitative changes in measurable behaviorable and/or environmental terms, which changes will be related to PBEC's goals and objectives. PBEC will measure attainment of goals and objectives in terms of actual data collected by national and local surveys, formal educational testing experts, environmental action evaluation experts, and other less quantitative measures. Examples of the latter are critical acceptance, spontaneous public response, legislative approval and broad funding support.

Whenever possible, the evaluation will be made on a "person-to-person" basis. Thus, audience surveys will use personal interview techniques; educational evaluation will use in-process observers in the classroom and home; environmental action evaluation will use community dynamicists in on-site measurement; local station response to Communications Services and the PBEC System activities will be on a personal contact basis. In addition, the evaluators will be evaluated; panels of experts in education, community action, and communication arts and sciences will meet frequently at PBEC and elsewhere to evaluate the efficacy of PBEC's evaluation methods and recommend corrective action when necessary.

This "person-to-person" approach will actually be a continuation of PBEC's method and approach during its Phase I period, when staff and consultants interviewed, surveyed and held Workshops for just these purposes (e.g., the Harris national poll on environmental attitudes;[9] the NAEB survey of public broadcasting environment activity;[10] PBEC staff visits to other public broadcasting sources, national and local; use of education and environmental experts as sources).

Planning - The outputs of Management Controls and External Evaluations are integrated by the short-range and long-range planning functions into a complete evaluative and planning whole. By means of monthly and quarterly reviews, external evaluation of data (measuring impact in various operational areas) will be correlated against internal evaluation data, all in terms of PBEC's goal and objective attainment. The degree of external impact will then be related in cost-effectiveness terms, where possible, to internal resource use. Subsequently, short-term plans will be modified accordingly to improve resource utilization, relative to objective attainment.

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[8] See Appendix VI A 2, External Evaluation.

[9] For Harris survey details, see Appendix IV, Target Audience Characterization, and Exhibit: The National Public Television Audience.

[10] For NAEB report, see Appendix I, Surveys, and Exhibit: Public Television and Radio Stations and Their Environment.

Annual planning reviews will measure achievement against cost. These reviews, in concert with PBEC management and all operational activity managers, will generate a realistic annual plan (as a part of an updated five-year planning cycle).

Information Service - An information service will be established to collect environmental data and locate expertise as required to support internal and external information users. A library of references, books, films, etc. has been established at PBEC and will be kept current; elsewhere, a computerized file consisting of environmental data, expertise name files, "library of libraries," etc., will be available through a computer terminal at PBEC. Special search capability will also be provided to service the Communications Services.

Administration

Immediately after PBEC's operational authorization, a flexible, responsive Administrative Service will be established and operated. Best current practice will be used to administer personnel, monies, equipment and facilities, supplies and services required and provide house-keeping data to management.

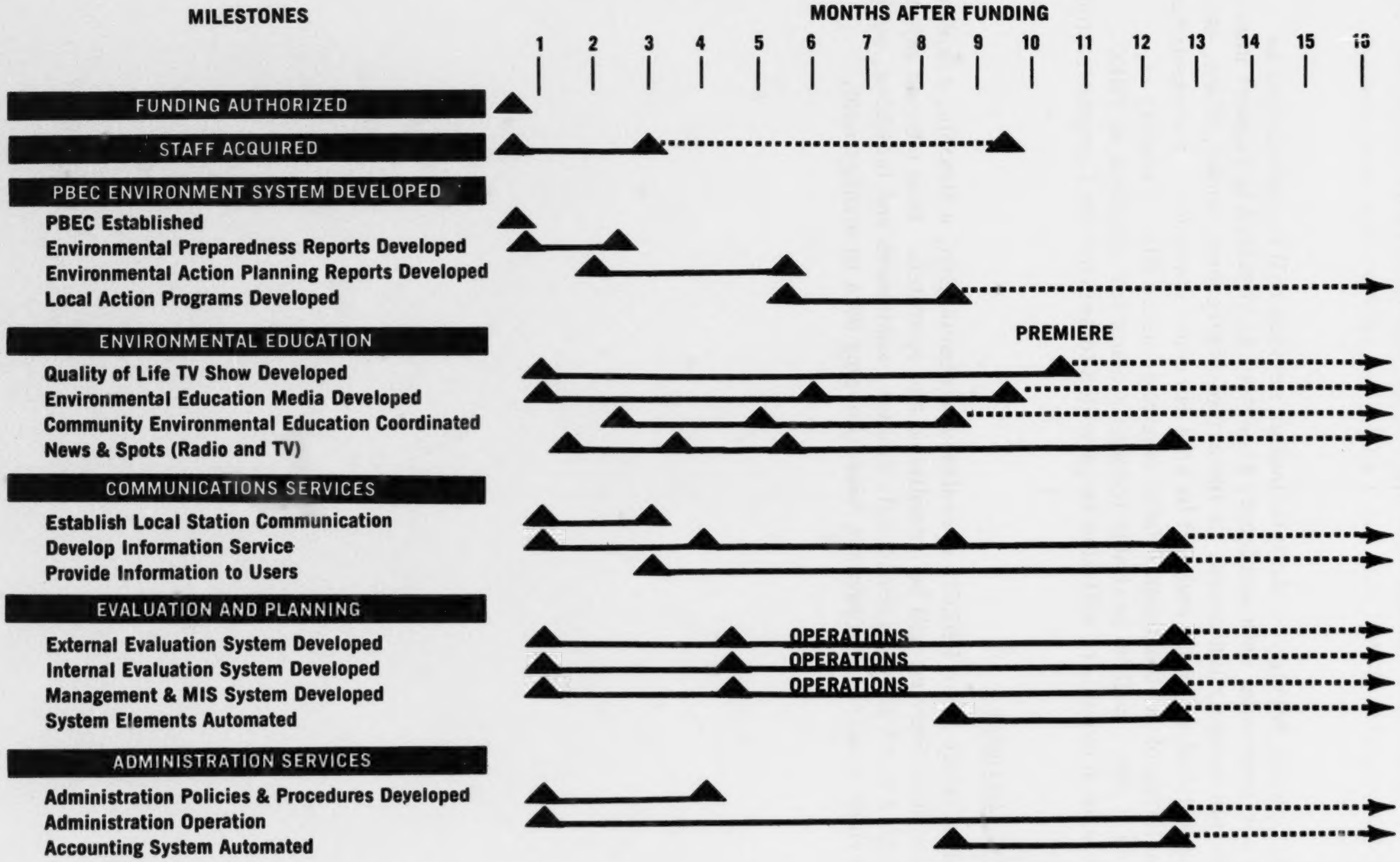
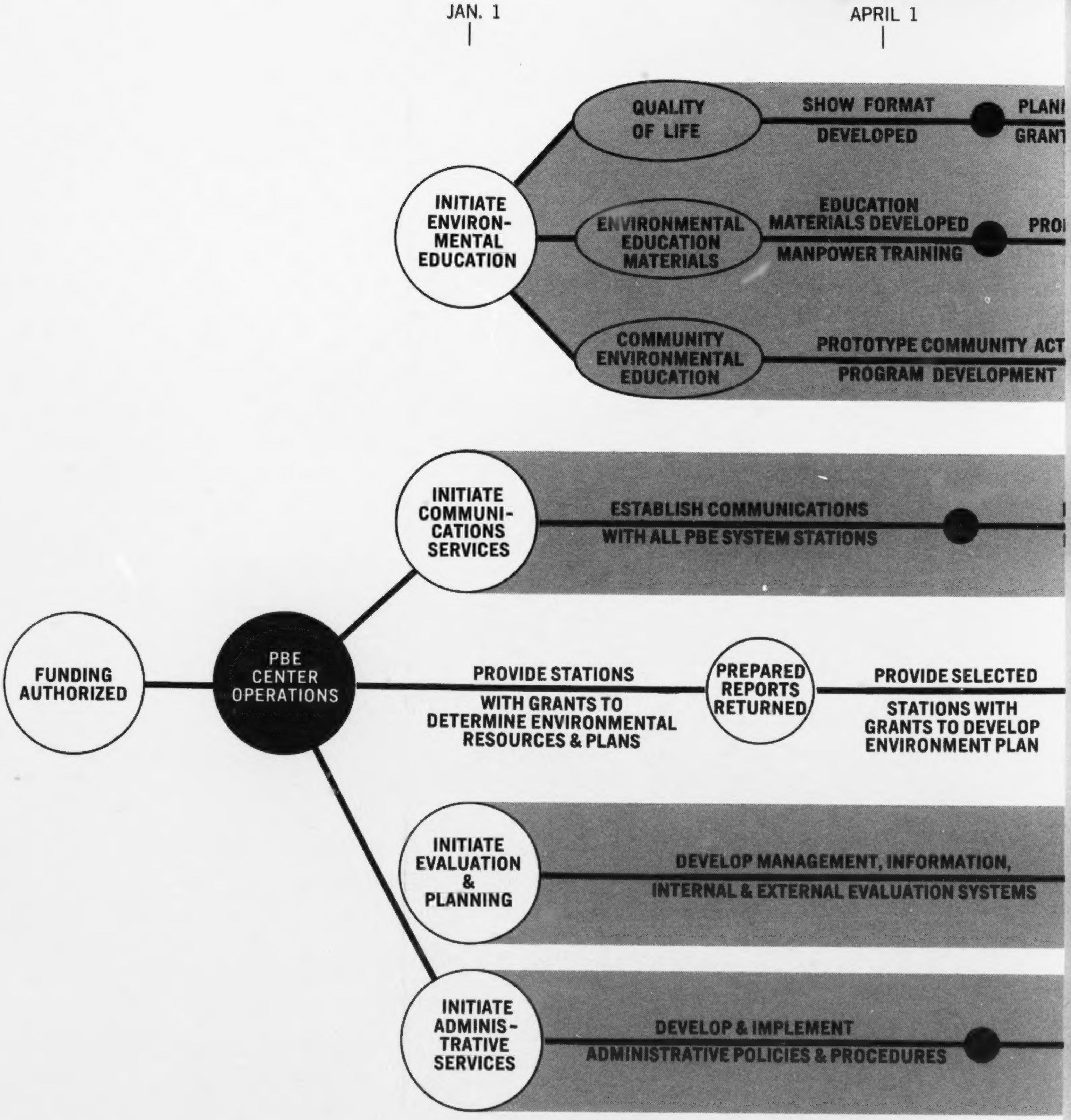


FIG. 3
OVERALL PBEC TIME-TASK (GANTT) CHART
CALENDAR YEAR 1971

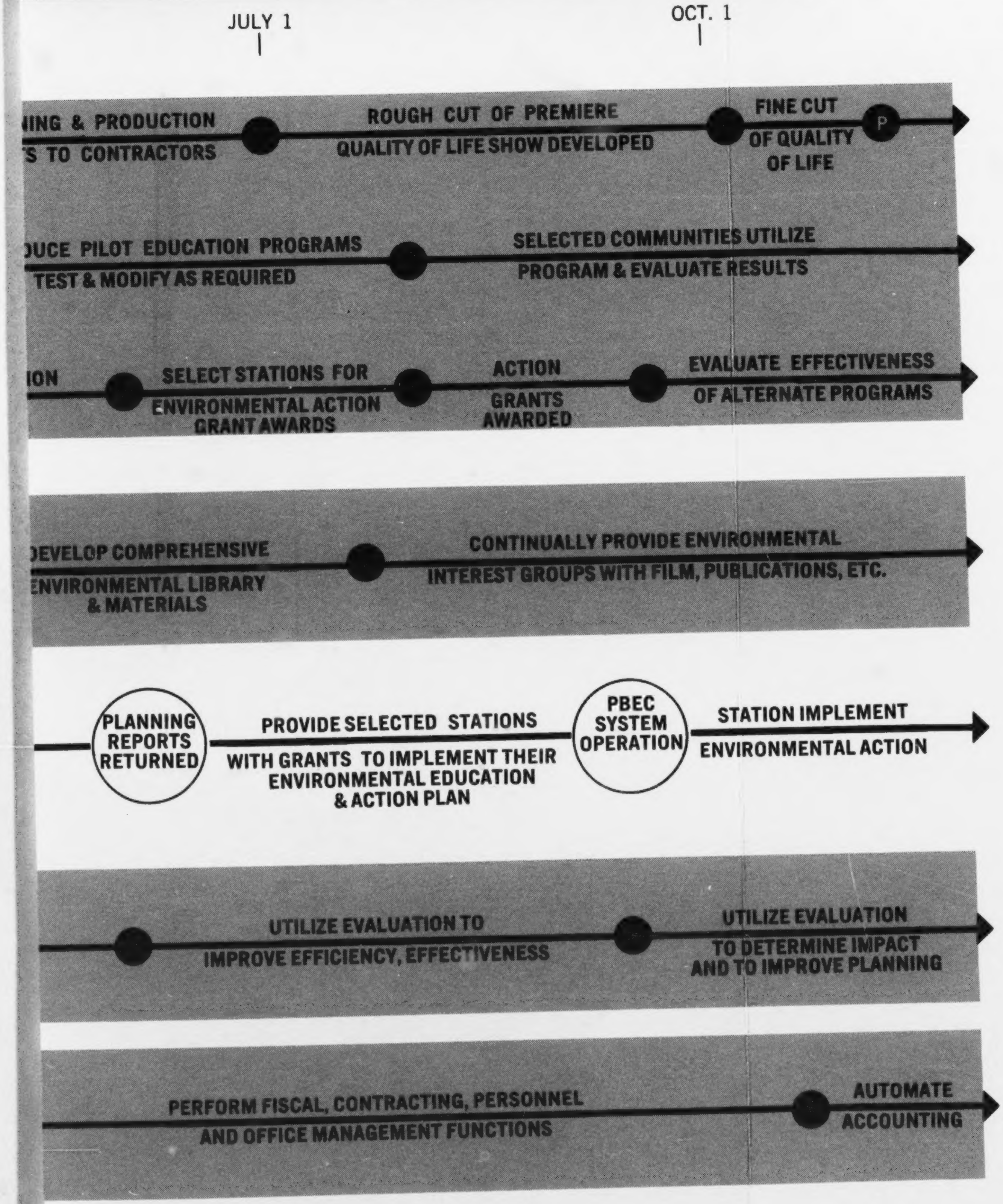
PUBLIC BR

SYSTEM


JAN. 1
APRIL 1
QUALITY OF LIFE
SHOW FORMAT
DEVELOPED
PLANI
GRANT
INITIATE ENVIRON-MENTAL EDUCATION
ENVIRONMENTAL EDUCATION MATERIALS
EDUCATION MATERIALS DEVELOPED
MANPOWER TRAINING
PROI
COMMUNITY ENVIRONMENTAL EDUCATION
PROTOTYPE COMMUNITY ACT
PROGRAM DEVELOPMENT
INITIATE COMMUNI-CATIONS SERVICES
ESTABLISH COMMUNICATIONS
WITH ALL PBE SYSTEM STATIONS
FUNDING AUTHORIZED
PBE CENTER OPERATIONS
PROVIDE STATIONS
WITH GRANTS TO DETERMINE ENVIRONMENTAL RESOURCES & PLANS
PREPARED REPORTS RETURNED
PROVIDE SELECTED
STATIONS WITH GRANTS TO DEVELOP ENVIRONMENT PLAN
INITIATE EVALUATION & PLANNING
DEVELOP MANAGEMENT, INFORMATION,
INTERNAL & EXTERNAL EVALUATION SYSTEMS
INITIATE ADMINIS-TRATIVE SERVICES
DEVELOP & IMPLEMENT
ADMINISTRATIVE POLICIES & PROCEDURES

OADCASTING ENVIRONMENT CENTER
EDUCATION SYSTEM

OPERATIONS for Calendar Year 1971



JULY 1

OCT. 1

ING & PRODUCTION
S TO CONTRACTORS

ROUGH CUT OF PREMIERE
QUALITY OF LIFE SHOW DEVELOPED

FINE CUT
OF QUALITY
OF LIFE

P

UCE PILOT EDUCATION PROGRAMS
TEST & MODIFY AS REQUIRED

SELECTED COMMUNITIES UTILIZE
PROGRAM & EVALUATE RESULTS

ION

SELECT STATIONS FOR
ENVIRONMENTAL ACTION
GRANT AWARDS

ACTION
GRANTS
AWARDED

EVALUATE EFFECTIVENESS
OF ALTERNATE PROGRAMS

EVELOP COMPREHENSIVE
NVIRONMENTAL LIBRARY
& MATERIALS

CONTINUALLY PROVIDE ENVIRONMENTAL
INTEREST GROUPS WITH FILM, PUBLICATIONS, ETC.

PLANNING
REPORTS
RETURNED

PROVIDE SELECTED STATIONS
WITH GRANTS TO IMPLEMENT THEIR
ENVIRONMENTAL EDUCATION
& ACTION PLAN

PBEC
SYSTEM
OPERATION

STATION IMPLEMENT
ENVIRONMENTAL ACTION

UTILIZE EVALUATION TO
IMPROVE EFFICIENCY, EFFECTIVENESS

UTILIZE EVALUATION
TO DETERMINE IMPACT
AND TO IMPROVE PLANNING

PERFORM FISCAL, CONTRACTING, PERSONNEL
AND OFFICE MANAGEMENT FUNCTIONS

AUTOMATE
ACCOUNTING

PRODUCTS AND SERVICES

Early in its first year of operation, PBEC plans to activate a comprehensive environmental education and two-way communications System consisting of PBEC; local public broadcasting stations (TV and Radio); local education groups; local environmental action groups; and related state, Federal, and international education and environmental agencies and organizations.

Once this unique broadcast media-based education System is activated, PBEC must continually support it through the provision of a wide range of environmental education products and services.

Among the interrelated products and services that will be provided to elements of the system are the following:

Environmental Educational Television and Radio Programs
Environmental Educational Support Materials
Environmental Manpower Training Programs
Environmental Education Information
Environmental Education Technical Assistance
Environmental Education Financial Assistance

Environmental Educational Television and Radio Programs

Quality of Life (working title) - A one hour, weekly television program, using a magazine format, which contains segments for reuse by educational and environmental action groups. This program will run for 39 weeks, with 13 additional weeks of re-edited or repeated programs. It will contain the following types of material:

> Ways To Go - An educational TV segment exploring the environment and man's place in it, the uses of water, air, land and our fellow creatures, stressing interrelationships of man and his surroundings. Adaptable to film, slides, print for home and classroom use.
>
> Segments on life styles, new towns, new schools, new energy sources, new technology, new behavior.
>
> Reports on how communities have coped with environmental blight, how national and local organizations worked with citizens, industry and city fathers to make something happen. Get audiences to talk back.
>
> National, international and extraterrestrial events where environment news is being made—or where other news events have created interest in a locale. Public Television gave the

only sustained coverage of Earth Day, 1970; Quality of Life will carry on in that dedicated tradition.

The use of drama, of painting, sculpture, architecture, design, speech, dance and music as part of environment itself, to heighten awareness through appealing portrayal of environmental issues.

Ways It Is - To heighten environmental awareness and "literacy" this TV program will creatively explore cycles, relationships, textures, systems, change, perception in three- or four-minute showings, designed for flexible use by local stations, and in schools and other teaching situations; it is considered part of the education package.

Environment Alert - "Environmental ads" liven the hour-long show and for promotional and other "spot" purposes; they will run a half-minute to one minute each, both on television and radio.

News - As major environmental news events occur, we will be prepared to produce special informative and interpretive programs of varying length for radio and television, daily and weekly.

Byways - A 25-minute, national weekly radio series which would have broad audience appeal, although considered part of the elementary and secondary educational effort of the Center. Stories of current environment concerns, acted out in a "you-are-there" manner and through drama and humor, would be interspersed with:

- street surveys
- history
- listener participation
- sound experiments
- news flashes
- commentary
- debate

Environmental Education Support Materials

Education goes beyond mere awareness, to understanding. The hows and whys and therefores are just as important as the phenomena themselves. In matters of the environment, we are trying to provide understanding to adults, because we know it is an essential first step toward involvement. But we are also making a special effort to help the next generation learn, so they can avoid the mistakes of their elders. This means we have specific plans in elementary and secondary education to foster understanding of the life forces and interrelationships that make up and affect our environment.

The entire effort is called LIFE WAYS, which includes:

Ways It Is - the 3- or 4-minute TV program for local public television stations;

Ways To Go - the 10-minute TV segment of Quality of Life designed to promote ecological understanding, adaptable for class or home;

Byways - the 25-minute radio program; and

Pathways - the printed and audio/visual materials—perhaps even objects to touch—which are the support materials to the broadcasts, to be used by children, parents, teachers and teachers of teachers, to get the most out of the broadcasts. They could serve as guides to homework, and might come in the form of tapes, slides, activity cards and posters. The initial intention is to provide:

- Kits for ages 6 and 7,
- Kits for ages 10 and 11,
- Packages of combined subjects for high school students, and
- Packages of combined subjects for teacher training.

Environmental Manpower Training Programs

We expect to work with appropriate agencies of the U.S. Government and, where possible, state agencies and private industry, to inform and orient potential workers in the requirements of at least 30 new jobs which have been created during the recent environmental reclamation efforts. We will be equipped, because of both our environmental education qualifications and by our command of audio/visual techniques, to perform this task. It is obviously required: the Federal Water Quality Administration estimates that jobs for 28,000 new waste water treatment plant operators and technicians will be needed over the next five years, while 36,500 must be retrained to higher skills. Air pollution control and solid waste management also need new men and women with new skills.

Environmental Education Information

The Center intends to be the environmental "nerve center" for public broadcasters. Environment information is available in 65 locations in the Federal Government alone. There are countless audio tapes and thousands of books and periodicals.

We intend to organize and gather pertinent data systematically, so that we can inform public radio and television managers of latest developments, respond to requests for information, refer people to the holders of films, books, tapes and periodicals if we do not have them ourselves. We will seek access to

Federal data banks, as well as building one of our own. We intend to have a talent bank also, so that broadcasters can come to us to learn where the best producers and writers are to help them make their own environment programs. We plan to maintain close contact with knowledgeable people in the fields of environment, education, community action, etc.

To get the word out, PBEC will:

Conduct a research-query-response operation using teletype and other modern communications techniques;

Produce a daily five-minute radio environment news program;

Maintain continuous liaison with public radio and television stations;

Promote PBEC activities and services to create public demand and to exploit broadcast materials among other potential users; and,

Publish material for broadcaster or institutional use when appropriate.

Environmental Education Technical Assistance

In addition to the above products and services, PBEC must provide personal, expert, technical assistance of individuals and teams to support local public broadcasters, educators, and environmentalists. These individuals and teams will bring the best national and international authorities into action with local community personnel to improve local education programs, to coordinate community environmental action, to establish and monitor evaluation programs, to improve production controls, to bolster management skills, and to feed back all the learning experiences to other communities and to alter and improve PBEC plans. Advisory groups and workshops will be used significantly in this effort.

Environmental Education Financial Assistance

It seems almost too obvious to state, but there would be no public broadcasting without the individual local public radio and television stations. In the end, it is what they do which will determine whether national awareness or educational programs are translated into local relevance and concerted community involvement.

PBEC knows it must stimulate each station to develop to the fullest its own capacity for environmental programming and interaction with community forces on environmental education issues. To this end, the Public Broadcasting Environment Center System proceeds through four steps:

1. PBEC contacts all 198 public television stations and 96 CPB-qualified public radio stations and provides them with an Environmental Action Preparedness Grant. A recipient station approaches local government agencies, educational institutions and organizations such as conservation groups and chambers of commerce to explore environmental cooperation, then reports to PBEC.
2. PBEC evaluates local station preparedness reports to identify viable local station-community relationships, and on basis of that, provides an Environmental Action Planning Grant. With this grant and technical assistance of PBEC and independent experts, the station develops a broadcast-action plan to involve the widest spectrum of the community in formal and informal environmental education and environmental action.
3. Plans will be evaluated at PBEC by staff and a panel of consultant experts. The station submitting the most innovative and promising of plans will be provided an Environmental Action Implementation Grant, which could amount to several hundred thousand dollars. The recipient station would put his plan into operation, while many others with attractive plans might find other funding sources to proceed. PBEC would offer to assist in this fund-seeking.
4. Recipient stations evaluate their own program effectiveness and are subjected to PBEC's external evaluation system. Depending on the progress and effectiveness measured, local station support is extended in subsequent years.

This system has the dual advantage of building on the awareness program begun by PBEC's national broadcasters and strengthening the capabilities of the local station. It is seed money, deliberately process-designed to apply rigorous selection techniques and to assure the greatest chance of successful conclusion to the awareness-education-involvement goal.

To close the circle and reinforce the process, the national Quality of Life program would be likely to select the best of the programs and hold them up as significant models for other communities to learn from.

FUNDING AND BUDGET

In response to Paragraph K of the Scope and Method of Work on page 14 of the original PBEC proposal, the Corporation for Public Broadcasting is actively seeking supplementary funding for PBEC's operational phase from non-government sources. A video tape and 16 mm color film, together with supplementary printed material, has been prepared at CPB expense for fund-raising presentations. This video and sound presentation is a statement of the Public Broadcasting Environment Center's goal and objectives and will be shown to industrial concerns, trade associations, foundations and non-federal public agencies, such as the World Bank and the United Nations.

Stress should be put upon the cost-effectiveness of using television in a broad education-oriented project, as opposed to traditional educational approaches. As the Children's Television Workshop has shown, the "Sesame Street" costs of \$5 to \$10 million to reach about 5 million children compare very favorably with exposing one-half of the potential Sesame audience of four-year-old children to conventional school programs at a cost of \$2.75 billion.

PBEC's initial budget estimates came roughly to \$11.3 million. Great efforts were made to maintain the necessarily integrated program of education-oriented segments at the lowest cost possible, yet at high levels of efficiency. As a result, the accompanying budget totaling \$7,862,000 was achieved. To reach a similar audience potential with similar national impact, a 50-state approach to environmental education would cost approximately \$4 billion. Funding is contemplated on a 50-50 matching basis with U.S. Office of Education; the Corporation for Public Broadcasting has planned an initial grant of \$1 million to PBEC.

During the first year of operations, PBEC will therefore need approximately \$8 million in funding to fully implement the PBEC System detailed in this report. This funding will be utilized to support five major functional areas of operation:

a. PBEC Education System
b. Environmental Education Programs
c. Communications and Information Services
d. Evaluation and Research
e. Administration

Estimated costs for each of these major functional areas, and per month and cumulative costs for operations are summarized on the following budget. Additional cost details by function and included contracts, staff and overhead are also shown, followed by a series of notes relevant to these costs. These cost estimates are based on a time-phased build-up of activities over a one-year operational period (see Figure 1, page 16).

PUBLIC BROADCASTING ENVIRONMENT CENTER

EDUCATION SYSTEM

(Estimated Costs for Calendar Year 1971)
(add 000)

By Function

	Contracts	Labor & Overhead	Totals
A. PBEC Education System	$ 1,000	$ 0	$ 1,000
B. Environmental Education			
National Education	1,630	405	2,035
Community Education	1,379	211	1,590
Education Materials	1,494	171	1,665
Sub-Total	$ 5,503	$ 787	$ 6,290
C. Communications Services	$ 81	$ 299	$ 380
D. Evaluation and Research	853	133	986
E. Administration Services	60	145	206
Sub-Total	$ 994	$ 577	$ 1,572
TOTAL	$ 6,497	$ 1,364	$ 7,862

By Month

	Per Month	Cumulative
January	$ 205	$ 205
February	274	479
March	528	1,007
April	665	1,672
May	696	2,368
June	719	3,087
July	808	3,895
August	790	4,685
September	797	5,482
October	814	6,296
November	784	7,080
December	782	7,862
ANNUAL TOTAL	$ 7,862	$ 7,862

(Cost Details By Function, Contracts, and Staff & Overhead)
(add 000)

A. PBEC Education System

Contract Costs:

Environmental Education Preparedness Grants	$ 250
Environmental Education Planning Grants	500
Environmental Education Implementation Grants	250
Sub-Total	$ 1,000

Staff and Overhead Costs:

(No additional staff and overhead costs shown for this function, since PBEC staff and overhead costs are fully burdened in those functional areas associated with continuing operations: Environmental Education; Communications Services; Evaluation and Research; and Administration.)

Sub-Total	$ 0
TOTAL	$ 1,000

B. Environmental Education Programs

Contract Costs:

National Environmental Education (Quality of Life TV Show)	$ 1,630
Community Environmental Education	1,379
Environmental Education Materials	1,494
Sub-Total	$ 4,503

Staff and Overhead Costs:

Staff (28 employees)	$ 492
Overhead (at 60%)	295
Sub-Total	$ 787
TOTAL	$ 5,290

(Cost Details By Function, Contracts, and Staff & Overhead, cont.)
(add 000)

C. Communication and Information Services

Contract Costs:

Library and Information Materials	$	55
Publications for Distribution		26
Sub-Total	$	81

Staff and Overhead:

Staff (18 employees)	$	187
Overhead (at 60%)		112
Sub-Total	$	299
TOTAL	$	380

D. Evaluation and Research

Contract Costs:

Environmental Information Services	$	79
External Evaluation System/Planning		113
Consultants (General)		4
National Education Programs Evaluation		135
Community Education Programs Evaluation		117
Audience Environmental Education Evaluation		145
Target Audience Response Evaluation		90
Internal Evaluation System		136
Computer Services		34
Sub-Total	$	853

Staff and Overhead:

Staff (6 employees)	$	83
Overhead (at 60%)		50
Sub-Total	$	133
TOTAL	$	986

(Cost Details By Function, Contracts, and Staff & Overhead, cont.)
(add 000)

E. Administration Services

Contract Costs:		
Accounting System Automation	$	18
Accounting System Audits		12
Fees and Temporary Secretaries		30
Sub-Total	$	60
Staff and Overhead:		
Staff (8 employees)[1]	$	91
Overhead (at 60%)		55
Sub-Total	$	146
TOTAL	$	206

PBEC Education System

During the first year operations, PBEC must activate an educational system that is capable of supporting and implementing environmental education. This system will be made up of local TV and radio stations; local, state, and Federal education departments and groups; and local, national, and international environmental groups. This "education system" will have PBEC as its communication center. The system will be activated in three steps. Each public broadcast station, upon satisfactory application, will be given funds to develop an environmental education preparedness report for its community ($250,000 allocated). Then selected communities will be given planning grants ($500,000 allocated) to plan in detail how they will participate in the PBEC program.

Finally, a few communities will initially receive implementation grants to put their PBEC supportive plans into operation ($250,000 allocated this year). As more communities become eligible and as funding becomes available in subsequent years, implementation grants will be increased.

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[1] Management employees (4) costs are included in general overhead burden of 60%.

Environmental Education Programs

Operating costs have been developed for three major categories of PBEC environmental education programs. National programs include the "Quality of Life" weekly TV show, other national TV spots, and radio programs and spots ($1,630,000 allocated), all of which are interrelated with community education programs. The community program costs ($1,379,000 allocated) include the actual testing and implementation of environmental education packages at the local community level (i.e., within schools and environmental groups). The education materials costs ($1,494,000 allocated) will be used to develop materials for distribution in conjunction with national and community programming.

Communication and Information Services

As the PBEC System is activated, requests for information, data, publications, and technical assistance relevant to environmental education will be directed to PBEC. Therefore, $55,000 has been allocated for the purchase of library materials and development of information exchange data files, and $26,000 has been allocated for materials to be distributed to users. Staff for this function will be built up rapidly to provide technical assistance to system elements upon request.

Evaluation and Research

Evaluation and Research costs have been allocated to cover all aspects of PBEC internal operations; and external process, impact, effectiveness, and audience analysis. Specific contract estimates in these areas are shown in Figure

Administration Services

PBEC proposes to maintain a relatively small administrative staff (8 employees at full operational capacity). It is currently predicted that overhead costs (does not include contracts, or direct labor expenditures. Includes rent, fringe, travel, telephone, office supplies, etc.) for the total operation will run at approximately 60 percent of employee costs. Operating history will later suggest how this estimate should be modified for the future.

PHASE I ACTIVITIES

We need new knowledge, new perceptions, new attitudes—and these must extend to all levels of government and throughout the private sector as well: to industry; to the professions; to each individual citizen in his job and in his home. We must seek nothing less than a basic reform in the way our society looks at problems and makes decisions.

It is also vital that our entire society develop a new understanding and a new awareness of man's relation to his environment—what might be called "environmental literacy." This will require the development and teaching of environmental concepts at every point in the educational process.

We must achieve a new awareness of our dependence on our surroundings and on the natural systems which support all life, but awareness must be coupled with a full realization of our enormous capability to alter these surroundings.

At the heart of this concern for the environment lies our concern for the human condition: for the welfare of man himself, now and in the future...we should set ourselves a higher goal than merely remedying the damage wrought in decades past. We should strive for an environment that not only sustains life but enriches life, harmonizing the works of man and nature for the greater good of all.

Richard M. Nixon
President's Message in transmitting to
Congress the First Annual Report of the
Council on Environment Quality
August 1970

The Congress of the United States finds that the deterioration of the quality of the Nation's environment and of its ecological balance poses a serious threat to the strength and vitality of the people of the Nation and is in part due to poor understanding of the Nation's environment and of the need for ecological balance are therefore necessary.

It is the purpose of this Act to encourage and support the development of new and improved curricula to encourage understanding of policies, and support of activities designed to enhance environmental quality and maintain ecological balance; to demonstrate the use of such curricula in model educational programs and to evaluate the effectiveness thereof; to provide support for the initiation and maintenance of programs in environmental education at the elementary and secondary levels; to disseminate curricular materials and other information for use in educational programs throughout the Nation; to provide training programs for teachers, other educational personnel, public service personnel, and community, labor, and industrial and business leaders and em employees, and government employees at State, Federal and local levels; to provide for the planning of outdoor ecological study centers; to provide for community education programs on preserving and enhancing environmental quality and maintaining ecological balance; and to provide for the preparation and distribution of materials by mass media in dealing with the environment and ecology.

Environmental Education Act
Passed by Congress in October 1970
Signed by President Nixon
October 30, 1970

Intelligent environmental action, however, cannot await the emergence of a new generation whose environmental literacy is the product of education from kindergarten through 12th grade and beyond. Therefore, major attempts are underway to educate and motivate the present adult population, primarily through the mass media and community projects, focusing on local problems.

First Annual Report of the
Council on Environmental Quality
August 1970

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

Preamble of the World Health
Organization Constitution, 1948

Establishment of PBEC

During the past year every broadcasting network and major newspaper and magazine has written on environmental problems. To assure a sustained educational effort through the media, the U.S. Office of Education, Department of Health, Education, and Welfare, awarded funds to the Corporation for Public Broadcasting to establish an Environment Center. The Center will provide television programs and radio materials designed to increase public awareness of environmental problems. It will help prepare teachers for environmental education and train others for careers in environmental management industries.

First Annual Report of the
Council on Environmental Quality
August 1970

The U.S. Office of Education made a $600,000, six-month planning grant, effective June 1, 1970, to the Corporation for Public Broadcasting to create an institution "to focus the valuable resources of television and radio in the most effective manner possible to create an improved quality of the environment" and to develop a systematic plan for action that would result in such improvement.

The action plan further specified the development of programs for: general audiences; specific target audiences; primary and secondary environmental education for teacher training; community action through local institutions. These programs would be delivered by public broadcasting and other facilities, including commercial media as appropriate. Also included in the planning phase was the development of a method for evaluating the impact and the effectiveness of programs to be produced on the general and target audiences.

To create a viable institution for these purposes and to develop a systematic plan, the Phase I proposal specified a number of interrelated tasks, including surveys of what has been done in such areas as classroom and teacher environmental training, public and commercial broadcasting, films and other materials; development of a film and reference library; production of a plan for pilot programs needed for an environmental television series tentatively called "Quality of Life," with segments intended for classroom use; identification of target audiences and a plan for before-and-after measurement of such target populations whenever feasible; schemes for use of scripts, films, manuals, charts, and other visual aid materials for specific programs and target populations; plans to identify production sources and for scheduling and control of program and associated activities; development of internal and external evaluation systems and management controls; description of ways to use other media; and finally development of a Public Broadcasting Environment Center, preparation of a report for Phase II and explanation of efforts to secure supplementary funding.

These planning requirements and additional tasks have been completed. Many of the items included in the tasks and products requirements describe areas of activity which will become continuing efforts in the operations of Phase II of the project.

This Final Report is in response to the requirements and specifications made in the planning proposal and describes the activities, accomplishments, conclusions and recommendations arrived at during the six-month planning phase.

Early Development of PBEC

Discussion of the need for public broadcasting to focus in a special way on man's relationship to his environment paralleled the development of general public concern about environmental matters. A resolution of the Executive Board of the National Association of Educational Broadcasters in November of 1969 said: "We are concerned primarily with the need for greater public awareness and commitment to resolving the important issues concerned with the natural environment and with the man-made conditions which jeopardize it."

President Nixon's first official act in 1970 was his signing on January 1 the National Environmental Policy Act. In his January 22 State of the Union address, the President dwelt on this subject which, he said, "may well become the major concern of the American people in the decade of the seventies." On February 10, Mr. Nixon sent a special message to Congress on the Environment, citing the "urgent common goal of all Americans: the rescue of our natural habitat as a place both habitable and hospitable to man."

Later in the year, the Senate report on the Environment Education Act, signed by President Nixon on October 30, said: "The educational TV medium, museums, parks...community organizations all have a role to play in the development of a new environmental ethos, both in a planned relationship with the formal educational system and separate from it." The Senate report described environmental education in terms which suggest PBEC's developing role: "Environmental education is intended to promote among citizens the awareness and understanding of the environment, our relationship to it, and the concern and responsible action necessary to assure our survival and to improve the quality of life."

The first specific proposal made for an environment-oriented institution designed to operate primarily through the medium of public broadcasting was a document prepared in the Corporation for Public Broadcasting, dated February 10, 1970, which said: "The purpose of this paper is to establish the basic concepts for a relationship between the Office of Education and the Corporation for Public Broadcasting for activities directed toward environment education." The paper stressed "concepts." It outlined the possibilities of "environmental programming" and provided a tentative table of organizations for an institution to carry out the ideas discussed.

During these early weeks of 1970, conversations between the U.S. Commissioner of Education and the Corporation for Public Broadcasting began to enlarge on the concept of using public broadcasting to broaden the awareness of environment in America, On February 25, Wayne Miller, later to become Executive Director of PBEC, outlined in some detail the possible shape and activities of "a Public Broadcasting Environmental Center," as a commentary on the earlier concept paper.

Office of Education Support

On March 6, the Commissioner of Education wrote a letter to the Corporation for Public Broadcasting "to inform you that we accept the concept of the Center, believe that the operation of such a Center over a period of years is desirable, and that provision of funds by the Office of Education is justified and consistent with authorized missions of this office."

The Commissioner's letter assessed the costs involved: "Based on information available to us, the cost of the first year of operation of the Center and the programs it will provide is approximately $9 million." He added that "we intend initially to provide $800,000 to the Corporation for Public Broadcasting for the purpose of activating the Center and its program operations."

Mr. John W. Macy, Jr., President of the Corporation for Public Broadcasting wrote a memorandum to Wayne Miller on May 12, entitled "Delegation of Authority," in which he noted the grant award from the Office of Education and delineated the various tasks expected of PBEC and its executive staff.

A formal public announcement was made to the press on May 25 of a $600,000 planning grant. On that occasion, the Commissioner of Education said: "This innovative project once again demonstrates the utilization of the great potential of television for educational purposes. It will provide an immediate educational program designed to increase public awareness of the environmental problems facing our society and promote understanding of the steps necessary to restore balance to a threatened environment." Mr. Macy made the point that "for the first time, a national broadcast system will devote full-time talent and attention to a public education campaign aimed at a universal problem."

Center Established

On June 1, 1970, the Corporation for Public Broadcasting did establish the Public Broadcasting Environmental Center and Mr. Miller formally assumed the office of Executive Director. Shortly thereafter, Mr. Thomas T. Hart was named Deputy Director. (The term "Environmental" was changed to "Environment" on August 4, 1970.)

Staffing, planning and orientation activities immediately began, with PBEC occupying offices in the CPB quarters, 888-16th Street, NW, Washington, D.C. As PBEC's needs became clearer and people were added to the staff, separate quarters were established on the 10th floor of 1030-15th Street, NW, in mid-July.

Staff Acquired

The principal areas investigated in recruiting a multi-disciplinary staff were education, research, information retrieval, administration and broadcasting. (For staff list and assignments, see Appendix VI B.)

From the outset, PBEC personnel worked closely and frequently with the experienced people at Corporation for Public Broadcasting, Public Broadcasting Service, National Public Radio and National Association of Educational Broadcasters, as well as with local stations throughout the country. Mr. Miller and other PBEC staff members visited radio and television stations, including those in Boston, New York, Baltimore, Denver, Los Angeles, San Francisco, Pittsburgh, Hershey, Binghamton, and Chapel Hill. These contacts were reinforced by visits to PBEC in Washington from station personnel from around the country.

Contracts Let

Contracts for specific projects aimed at PBEC's objectives and survey activities were let; e.g., Louis Harris and Associates were engaged for an in-depth analysis of television audiences to assess behavioral impact as well as simple viewing habits (this contract was let in conjunction with CPB and the Ford Foundation); International Research and Technology Corporation was charged with a survey of environmental education and communication activities in industry, business, trade, professional associations, unions, and local and state governments; Mathematica, Inc. examined problems in the area of design and development of an external evaluation system; the National Association of Educational Broadcasters undertook a survey of all public television and radio stations to determine what programming on the environment has been scheduled or was planned. The NAEB received an excellent response and the contract with NAEB will serve as a model for similar station contacts in the future. (A list of all PBEC Phase I contracts appears in Appendix VI B.)

Consultants Engaged

Many consultants were employed for short- and long-term assignments in the fields of education, communications, broadcasting, films, data processing, action organizations, environment and international programs. Some examples: Sylvester (Pat) Weaver, former President of NBC, worked on television program concepts and design; James Karayn, Bureau Chief of the Washington office of NET, developed a list of program production sources with evaluations of each and advised on production scheduling for television; Patrick McCarthy, Deputy Chancellor of the Massachusetts Board of Higher Education, advised on environmental education program development and other aspects of PBEC development. (A complete list of consultants and their tasks appears in Appendix XI B.)

Advisory Committees and Workshops

Several workshops have been held and PBEC Executive Director and staff members attended a number of conferences and panel discussions related to environmental subjects. The first staff workshop was held July 30 and was attended by CPB personnel as well as PBEC staff members. The second workshop attended by staff members was held at the Corcoran Gallery Workshop on August 12.

The PBEC Executive Director and staff met on August 12 with 19 members of the CPB Advisory Committee of National Organizations Subcommittee on the Environment.

The first PBEC formal Workshops were held September 10-11 and September 17-18 at the Sheraton-Park Hotel. Each Workshop included, in addition to several PBEC staff members and consultants, 20 outstanding experts in education, environment, law, the arts, and communications and were judged very constructive and informative by those who attended. The importance of these Workshops cannot be overestimated. Their continuance during Phase II is considered essential. (For members and agenda of Workshops, see Appendix III.)

The first meeting of the PBEC Advisory Council was held at the Madison Hotel in Washington, D.C. on October 2. As the Council members are distinguished professionals in their fields and intensely concerned about environmental matters, the meeting was positive and lively. Staff members and consultants of PBEC gave brief reports on the work and problems in their various areas of responsibility. The second Advisory Council meeting was held November 13 to review this Final Report for comment and suggestions. Council members made significant contributions to the PBEC Final Report. The members were brought up to date on PBEC activities and were shown a promotional film and brochure prepared by PBEC. (For list of Advisory Council members, see below.)

PBEC conducted a panel discussion at the annual convention of the National Association of Educational Broadcasters, November 11 at the Sheraton-Park Hotel. The panel session was titled "Local Stations and Environmental Programming."

The Phase I activities of PBEC are outlined in this section of the Report and in the Project Summaries which follow. The Appendix items which they summarize go into great detail in describing what PBEC staff and consultants did during the six-month planning phase and how they responded to the specific tasks assigned in the Phase I proposal.

In the course of this detailed activity, it was felt that PBEC should outline in more conceptual form just what it meant by "environment." A PBEC view of the environment was prepared and immediately follows this section.

ENVIRONMENTAL PRIORITIES - A PBEC VIEW

(Note - The following statement—a composite of concepts gleaned from readings, advisers, consultants and staff at the Public Broadcasting Environment Center, is meant to provide a philosophical outlook of the central concern before us. It is, as it were, the taking-off point for the activities and programs of PBEC.)

On our television sets we can now see Spaceship Earth whirling on its course, the men who live on it hidden to the distant camera's eye. But we are here, often feeling dwarfed into insufficiency by the immensity of the tasks that lie before us if we are to build a quality environment, yet sometimes everpowerful in the destruction we can cause through our technology. Technology can extend the reach of our power so that we become like giants whose hands destroy the earth.

What can we do to learn a wiser use of our own strength?

First, we must learn to be aware. With this sense must come recognition that our environment does effect us. Well planned, "it is a powerful force enhancing our quality of life. But badly designed, it is an incubator for inefficiency, waste, ugliness, frustration, despair and anger."[1] Once knowing this situation to be true, we must be motivated and enabled to act in new ways. "We should strive for an environment that not only sustains life but enriches life, harmonizing the works of man and nature for the greater good of all."[2]

What must be the knowledge we need to make wiser choices? The most important issue is achieving citizenry which understands that the natural system of earth is unitary. We, all of us on Earth, share a common predicament of a troubled planet which transcends any special interests. Our policies need to reflect this understanding in comprehensive systems planning.

When you understand that Earth is a closed system of ecological interdependence, it becomes clearer that we need to realize our dependence on the natural world which supports all life. We require greater understanding of the way energy is transferred. We see the need for a national energy policy. We must know how pollution travels from plants to the rivers and the sea and about other pollution problems of atmosphere, water, land, noise and pesticides. A clearer understanding of food chains and of ecosystems—of the interrelatedness of all living things—is basic for us to grasp. We must learn to recycle because, if we upset the interactions, we may produce dire events. To do so will require institutions for better environmental assessment to monitor pollution and relate it to changes in the atmosphere and the sea and the land.

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1. "The Individual and the Environment," K-12 Education Program sponsored by the AIA of Dallas, Texas; Introduction.

2. Nixon, Richard, Presidential Message in Environmental Quality, The First Annual Report of the Council on Environmental Quality, GPO, 1970, p. xv.

When we use technology, it must be with wise planning, long-range planning that takes into account not merely technological needs but the interplay of these forces with man's human, spiritual and aesthetic desires. We need new social indicators for the tasks as well as new institutions for technological assessment.

Nor can we in our pride believe that we can totally manage our world through technology. We must aim to accept nature (including human nature) and to the greatest extent possible allow it to function in man's behalf. We should use technology thoughtfully, "edit" our employment of it, for the purpose of fulfilling human goals of beauty, aesthetic satisfaction, order, health and welfare.[3]

We do not now know what all the parameters of a good environment for man are. We need to increase our knowledge of what spatial, food and other human needs man must meet to achieve basic acceptable levels of mental and physical health. More must be learned of the stress of crowding, the impact of ugliness, the gradually rising poison levels of pollution, in order to acquire base lines for our behavior in the world.

One element of the base line we do know. It is already evident that too large a world population increases the opportunities for stress. We must find ways to restrict the world's population.

New and wise national, regional and local land policies, better government regulations of planning and housing, more reasonable local zoning, and increased care for wild areas would all help to ease the pressures of our present urban-suburban sprawl.

If we do not make changes in our treatment of our environment and the humans that are a part of it, the warnings are clear. We face, in the not distant future, famine in the world which will breed more wars. We shall face administrative breakdowns, increased poverty, crime and racial tension, and ever-increasing pollution and ugliness. We shall face extinction.

To achieve the desired changes will require not only knowledge of nature and technology, but fundamental changes in human organization. Among the changes must be a better informed citizenry educated to participate in change in their own and larger communities, wise leaders, and new or restructured institutions at all levels of government which can mobilize and coordinate our efforts, while responding to minorities and majorities.

Most vitally, changes will demand basic shifts in our values. All of us have to begin to look more carefully at our tendency to want more and more material goods, which has lead to machines and their output inundating us with metal and

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3. Caldwell, Lynton Keith, Environment: A Challenge to Modern Society, New York, Natural History Press, 1970.

plastic. We shall have to restructure our laws, our economic priorities and our pricing systems and be willing to decide who will pay to clean up the mess and make up our minds who will pay for improved plans and future actions.

To make these decisions will require changes in our view of ourselves. To balance "the rain of excessive and bizarre information" which takes so much of our energy and strength to sort out, we need to bring back to our lives greater human understanding, and more opportunities for adventure, variety and noble ends. Most cultures have found increased joy in life also through the practice of the arts. We must return to some older values of self-restraint, courage, forethought and care for others, recognizing that our individual needs and those of posterity will ultimately best be met through this generosity. This redefinition of human values many believe is now in process. We need only accelerate it. "We are turning inward, as finally we must, to the springs of being."[4] We must devise new life styles which reflect these values.[5]

Nor can we limit our cares to the United States. Environmental problems are, in their nature, global. When we spend our AID dollars in developing countries, we must work with planners to find ecologically sound projects. But we cannot attempt to block the need of the less developed countries to raise their standard of living. And we must begin to right the balance of the United States having six percent of the globe's population while using forty to fifty percent of available resources. The United Nations '72 Conference and other international organizations require our participation and support on matters of common interest. Better assessments of total resources available to the world's population are needed in order to make plans which present a realistic appraisal of the relationship of decisions to available resources.

"The present situation calls for a combination of the drive to do with the drive to understand. The revolution we are involved in is so drastic that doing without understanding would be futile. The opportunities are so great that understanding without doing would be derelection. And in interaction, one drive can stimulate the growth of the other."[6]

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4. Farber, Seymour M., M.D., "Quality of Living-Stress and Creativity," Future Environments of North America, F. Fraser Darling and John P. Milton, eds., Natural History Press, New York, 1966, p. 354.

5. These ideas should be ascribed to a number of sources: Caldwell, CEQ Report, National Academy of Sciences Report, Reich (Farber - see direct quote), Dubos, etc.

6. Linville, William K., "Technology." Stanford Today, September, 1970, p. 6.

BIBLIOGRAPHY

This paper represents views of PBEC advisers, consultants, staff and readings from the following items and other sources. The fact that each idea was not individually footnoted should not be taken for lack of gratitude or recognition to the authors.

Boulding, Kenneth E. "The Economics of the Coming Spaceship Earth," Environmental Quality in a Growing Economy. Columbia University Press: New York, 1966.

Caldwell, Lynton Keith. Environment: a challenge to modern society. Natural History Press: New York, 1970.

Calhoun, John B. "Man of the Environment," URBSDOC No. 161, 21 May 1970 (for administrative and scientific review only).

Carson, Rachel. Silent Spring. Houghton Mifflin, 1962.

Dasmann, Raymond F. An Environment Fit For People. Public Affairs Institute, 1968.

Dubos, Rene. So Human an Animal. Natural History Press: New York, 1969.

Ecological Aspects of International Development, summary of Conference of December 1968, co-sponsored by the Conservation Foundation and the Center for The Biology of Natural Systems, Washington University.

The Environment. (A review of various books, introduction by Paul Shepard.) New York Times, Sunday Book Review, August 30, 1970.

Environmental Quality - 1970. Report of the President's Council on Environmental Quality, GPO: Washington, D.C., 1970.

Farber, Seymour M., M.D. "Quality of Living-Stress and Creativity." Future Environments of North America. F. Fraser Darling and John P. Milton, eds. Natural History Press: New York, 1966.

Fuller, R. Buckminster. Operating Manual for Spaceship Earth. Carbondale: Southern Illinois University Press.

Harrison, Gordon. "The Ecological View." Ford Foundation Grants in Resources and Environment. 1968.

"The Individual and the Environment." K-12 Education Program sponsored by the AIA of Dallas, Texas.

Institutions for Effective Management of the Environment, report of The National Academy of Sciences and the National Academy of Engineering, January 1970.

IUCN (International Union for the Conservation of Nature and Natural Resources) various unpublished planning and project reports, 1970.

Linville, William K. "Technology." Stanford Today. September 1970.

Matthews, Kaye. "Earthkeeping." A statement of purpose for an unpublished proposal, June 1970.

McHale, John. The Future of the Future. New York: George Braziller, 1969.

Nicolson, Max. The Environmental Revolution. New York: McGraw Hill, 1969.

Platt, John. "What We Must Do." Science. 28 November 1969, volume 166, pps. 1115-1121.

Reich, Charles A. "The Greening of America." New Yorker. September 26, 1970.

Study of Critical Environmental Problems (SCEP). Summary of Major Findings and Recommendations, Conference sponsored by MIT at Williams College, Williamstown, Massachusetts, August 1970.

The Subversive Science, Essays toward an Ecology of Man, edited by Paul Shepard and Daniel McKinley, Houghton Mifflin Company, 1969.

Toward Balanced Growth: Quantity with Quality. Report of the National Goals Research Staff, GPO: Washington, D.C., 1970.

Wilson, Thomas S., Jr. Position paper on Environmental Priorities written for PBEC, September 1970.

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PROJECT SUMMARIES

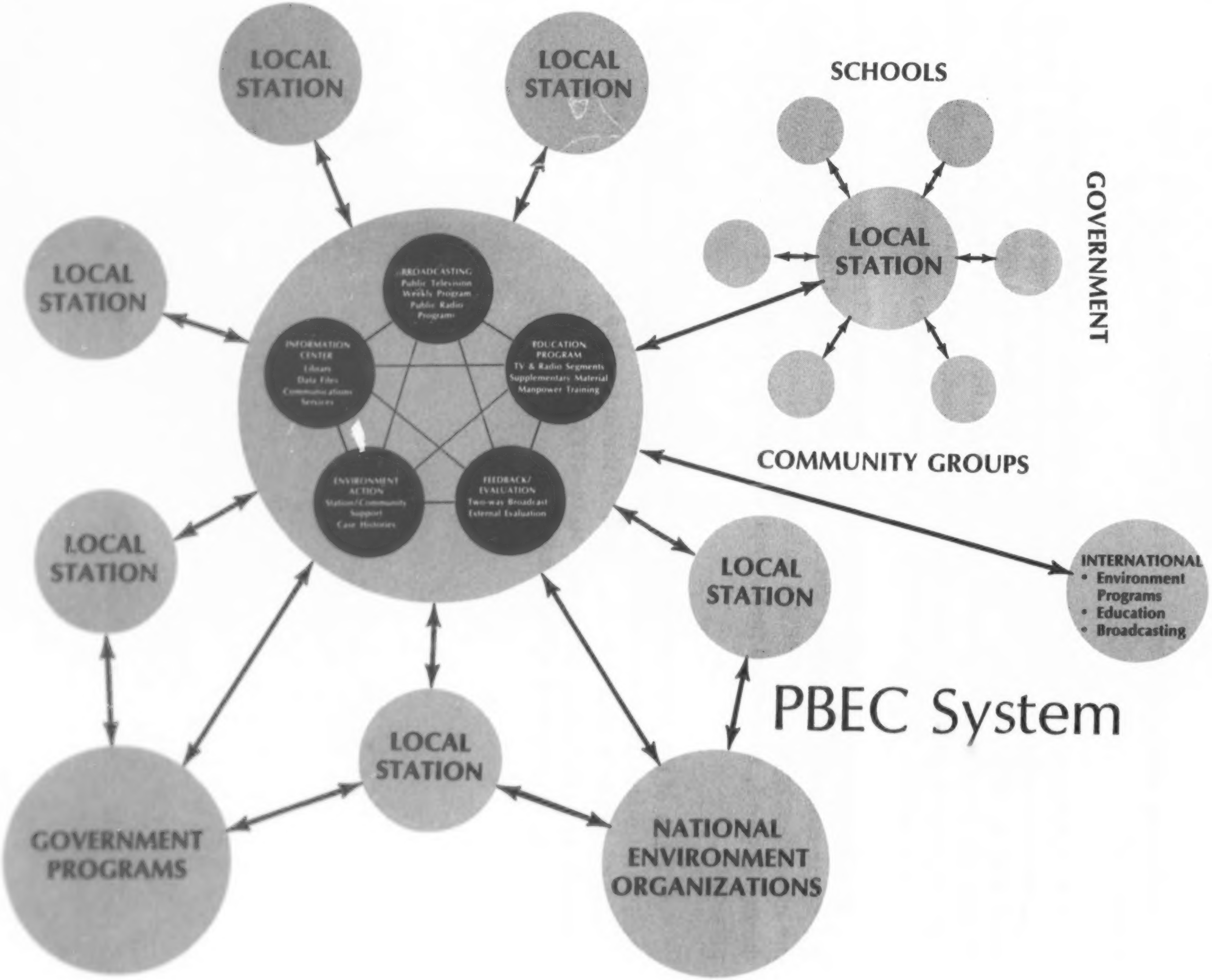
Introduction

Following are 11 summaries of the 11 Appendix reports which begin on page 117.

The summaries and the more detailed material to which they refer are organized to conform with the requirements of the planning proposal for PBEC dated May 1, 1970, pages 10-14, "Scope and Method of Approach," and page 24 "Tasks and Products." In addition to the specific reports requested, PBEC found during its planning phase that other subjects must be covered. Thus there are in Appendix I, Surveys, more than the four specific surveys requested.

The last three Appendix sections—IX. Manpower Training and Coordination, X. Environmental Education and XI. Environmental Action—while perhaps the most descriptive of PBEC's substantive mission and the work accomplished during Phase I, are added tasks, not specifically requested in the Phase I proposal.

As each of the summaries that follow this introduction will note, each of the 11 tasks and projects relates to the others and to the central PBEC System outlined earlier in this report. Most of the activities demanded by these projects are continuing functions, to be carried into the operational phase that will be proposed at a later date.



PBEC System

LOCAL STATION
LOCAL STATION
SCHOOLS
GOVERNMENT
LOCAL STATION
LOCAL STATION
BROADCASTING
Public Television
Weekly Program
Public Radio
Programs
INFORMATION CENTER
Library
Data Files
Communications
Services
EDUCATION PROGRAM
TV & Radio Segments
Supplementary Material
Manpower Training
ENVIRONMENT ACTION
Station/Community
Support
Case Histories
FEEDBACK/ EVALUATION
Two-way Broadcast
External Evaluation
COMMUNITY GROUPS
LOCAL STATION
LOCAL STATION
INTERNATIONAL
• Environment Programs
• Education
• Broadcasting
LOCAL STATION
GOVERNMENT PROGRAMS
NATIONAL ENVIRONMENT ORGANIZATIONS

Summary

I. SURVEYS*

The objective of the survey effort was to identify significant environmental programs, materials, data and ideas, related to PBEC's goals and objectives. Local, national and international arenas were to be selectively sampled wherever significant environmental activities were known to exist. These included the communities of industry and labor, science and technology, education and communication, art, government and law, and social and behavioral dynamics, among others.

The purpose of the surveys was to provide a data base for developing PBEC programs. The survey data would: assist in decision-making on concepts and approaches; avoid duplication; harmonize proposed and existing environmental activities; and permit allocation of resources in the most cost-effective and accountable manner.

Methods. The "cognizant expert" approach was the primary method used. Professionals skilled and experienced in one or more survey areas were employed as consultants or contractors. For example, International Research and Technology, Inc. was used to survey industrial, financial, scientific, professional associations and labor union environmental activities. The National Association of Educational Broadcasters was contracted to evaluate environmental public broadcast programs and program elements, while the National Association of Broadcasters surveyed commercial environmental broadcast activities. Among consultants, for example, were such experts as: T. W. Wilson, Jr., consultant to the United Nations, the Anderson Foundation and other international bodies; and R. S. Brown (Sloan School of Management at MIT). Each provided analysis and consultant reports in his specialty area.

PBEC's definition of the environment encompasses all of man's cultural manifestations (as well as the conventional bio-physical environment); accordingly a survey of all these universes requires selectivity. Therefore, all surveys were constrained by the idea of "significance." Each survey had predetermined evaluative criteria designed to identify only environmental ideas and objects valuable in more than one way. Criteria usually considered important were: goal-orientation; comprehensiveness; innovation; effectiveness and transferability.

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*This report satisfies the requirements of "A. Surveys" of IV. Scope and Method of Approach, page 10, of the OE Grant. It also responds to "4 Surveys," page 24 of the OE Grant.

Environmental Education. The survey showed that environmental education, now a major national concern, involves considering the total complex of involvement of man with man and man with nature and technology. "Open education," where the student discovers with the teacher (who helps set goals and give background for appropriate alternative choices for action) is central to environmental education. "Field work," with direct involvement in the ambient world by both teacher and taught, is also crucial. These ideas of open education and field work require broad interdisciplinary approaches.

The surveys showed that there are few programs realizing these ideals; however, those that do are exciting and effective. More important, interesting trends and examples are evident all over the country. The unpublished report by George Lowe and his colleagues at the Office of Education exhaustively documents these national trends.

The Center's surveys in the areas of primary, secondary and higher education provide detail to Lowe's survey. We identify the valuable trends with examples of good environmental education in science and technology, the arts, architecture and the humanities, social sciences and international education.

Surveys revealed that in higher environmental education, almost every college and university appears to be interested in the environment. Virtually all claim to be interdisciplinary in intent, if not in actuality. The range of disciplines covered varies. Some centers are still chiefly science-oriented. Many now include social science. A growing number include some behavioral science. Certain programs cover the full range, including humanities, although those that started with a design or art base appear to have loose ties with science. A few projects involve international dimensions as well. Also, many colleges are using environment studies as a vehicle for general educational and institutional reform. In these places, student initiative is much encouraged. There are a growing number of new colleges which take environment as their central theme, and others which strongly relate to communities through field work and action.

Secondary and upper primary environmental education is increasing, with growing evidence of open and multi-disciplinary approaches. However, lower primary environmental education leaves much to be done. If present at all, the programs tend to center around conventional outdoor/conservation/science education, are used alone and do not emphasize the importance of interaction of perceptual processes, socio-cultural systems and environmental facts and values. Internationally, however, (particularly in Great Britain) environmental education is advanced, rich, and flourishing, especially at primary levels. Other countries tend still to emphasize science and outdoor education.

Teacher training parallels curriculum development in most parameters and teaching values.

Films. Though there were hundreds of environmentally related films, most were pedestrian and were judged inadequate against more than one of the selected criteria. Even those that were considered good tended to be: highly specific in area or discipline; either narrowly targeted for one audience or too catholic in approach; carrying either a heavy affective or cognitive load, but not both; and rarely motivating to action. The feeling of universality of life experience is seldom encountered. There are a few films that are really good when judged by all criteria. There are some good films, designed primarily for in-school use, that effectively present ecological concepts or concepts related to environmental adaptation in the animal world. There are few good films attempting to deal with problems of environmental degradation, designed for any target audience. However, the information collected does allow PBEC to identify and quickly obtain available, useful footage.

Commercial and Public Broadcasting. The material is voluminous, but most of it is ordinary or worse. Commercial material is: expensive; targeted for a national audience; negative in tone; has low knowledge content; and does not motivate to action. The public broadcast material displays a more positive approach. It sometimes teaches and motivates and is almost always "local" and community-oriented. Few programs from any source reveal the "man and man" and "man and nature and technology" interdependence that is so basic to the environmental problem.

Industry and Commerce. Environmentally related programs here are profit-oriented, pertaining to company image, market penetration and production costs and toward meeting government standards. However, some encouraging examples in attitude and action were found.

Trade and Industrial Association. These groups have been quick to respond to the environmental challenge with programs of public or member information. However, the environmental activities of these groups generally represent the lowest common denominator of their members' values and interests.

Labor Unions. Labor unions are beginning to use environmental issues as part of their bargaining position, dealing with both industrial hazards and the environment of the community or region. Union leaders are making efforts to involve themselves in the setting of national policy regarding environmental affairs. A valuable aspect of union activity is acquainting the membership with environmental issues.

Non-Profit Organizations. The specialized private non-profit organizations represent a well-defined range of environmental interests which are not competitive with government, industry or other institutions. The programs of non-profit groups include specialized research, education, and community action.

Universities. The special university programs have a strong local orientation, and are principally adult education and community action-oriented. The programs represented are quite innovative and appear to be accomplishing results previously thought by many to be impossible.

Government. Special governmental programs are wide-ranging (such as one study of decision models for simultaneous solution of economic, biologic, social and ecologic problems). The programs include research, demonstration, and education. Some interesting programs are underway within agencies not normally associated with pollution abatement (e.g., Department of Defense, National Aeronautics and Space Administration, Smithsonian Institution).

Conclusions

These surveys show that there is considerable current activity, both nationally and internationally, related to environmental education and action. Part of this activity has resulted in programs and materials suitable for television and radio presentation. However, environmental education activities have not always been clearly focused, nor positively coordinated; the quality of the materials are varied, and the impact and effectiveness of the materials ranges from good, to ordinary, to questionable to clearly counter-productive.

Results suggest that there is need for a comprehensive "environmental education system" that is national in scope, that can incorporate, utilize and support the unique capabilities of public broadcasting, and that can maintain effective liaison with international organizations having like interests.

The PBEC System is just such a system, assisting local public broadcast stations, through community action, to facilitate a wide range of environmental education programs and actions (as described in Appendix XI). The PBEC System (to support community action) needs, among other resources, the information supplied by the PBEC Communications Service (described in Appendix VIII A.). The Communications Service in turn derives its data (on demand) from the PBEC Information Service. The information provided to users must be readily available, comprehensive, accurate, and current and as specialized as is required to support local station needs. Accordingly, we recommend the following specific action be implemented in Phase II.

Recommendations:

1. That the Information Service (Appendix II) maintain a continuous survey effort, reviewing environmental activities across a broad national spectrum.

2. That the Information Service (Appendix II) operate a responsive, comprehensive data acquisition and management system to identify other information and information resources.

3. That the Information Service (Appendix II) through specialized contractors and consultants, satisfy requirements for special information searches and surveys.

4. That PBEC establish and maintain contact with environmental experts, nationally and internationally, to augment conventional survey methods. (See Appendixes III and VIII B.)

5. That the Information Service, Communications Services (Appendix VIII A) and Environmental Action (Appendix XI) cooperate to make the surveyed information usefully available to all users, with special emphasis on educational institutions, community action groups and local public broadcast stations to foster the operational ends of the PBEC System.

Summary

II. INFORMATION SERVICES*

The Public Broadcasting Environment Center reviewed and selectively gathered materials essential for an environmental library. In doing so, it considered public and commercial television films, texts, reports of papers and proceedings of learned societies, professional journals, magazine and newspaper articles, work of firms engaged in environmental affairs and protection, research reports both public and private, and related reference materials. Actual possession was not required of all materials when reasonably rapid access could be assured.

In accordance with these requirements and PBEC's needs, our objectives in this effort were to: analyze and plan an information system supporting PBEC internal and external information users; survey environmental information resources; start a reference library; and provide Phase I information support to PBEC staff.

Analysis established a system configuration and detailed the system objectives and the process and resources required. The Information Service relies on PBEC staff (aided by contractors and consultants) to conduct searches for internal and external data users, upon request of PBEC's Communications Services (Appendix VIII A). A conventional library and an EDP file will store and retrieve the data after collection and analysis.

Repository research showed that no central environmental information source exists or will soon be available. Accordingly, operational relationships with the numerous dispersed resources have been established and will be used in Phase II to obtain data.

A reference library of broad scope has been established, currently consisting of more than 300 volumes and 100 reference books, 150 learned journals, a newspaper/magazine file and other reports and printed material. This collection will be augmented throughout Phase II. A film-library reference and acquisition system is required and is operating, but a permanent film collection is not necessary. During Phase I, the Information Service also provided information and search support to PBEC staff and consultants.

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*This report satisfies the requirements of "B. Film and Reference Library" of IV, Scope and Method of Approach, pg. 10 of the OE Grant, and "Film and Reference Libraries" of Tasks and Products, pg. 24 of OE Grant. It is also in partial satisfaction of the requirements of "A. Surveys" of IV, Scope and Method of Approach, pg. 10 of OE Grant.

It is recommended that a cost-effective Information Service be operated, responsive to the internal and external information needs of the PBEC System. To do this, the Information Service must:

1. Maintain and expand its collection of printed materials, operate its film reference and acquisition system and other related activities detailed in Appendix II.

2. Establish and maintain current both routine and special environmental activity surveys as recommended in the Survey Summary and Appendix I.

3. Operate the Information Service to be responsive to PBEC's requirements, but especially responsive to the needs of Communications Services (Appendix VIII A.); External Evaluation (Appendix VI A. 2); Environmental Education (Appendix X) and Environmental Action (Appendix XI). Such responsive support is vital to the full realization of the PBEC System and attainment of its goals and objectives.

Summary

III. ADVISORY BODIES*

The Public Broadcasting Environment Center was to create two advisory bodies, define their objectives and roles, and begin working with them.

The Center quickly realized that an organization dedicated to a broad range of disciplines (see "Goals, Objectives and Conclusions," at beginning of this report) required a multi-disciplined group of recognized achievers to provide policy guidance on one hand, and practical advice to operating personnel on the other. Such advisory groups have proven their worth to government, industry and non-profit institutions.

The Center established an Advisory Council, and a Planning Advisory Committee (see Appendix III).

Advisory Council. The Advisory Council is composed of prominent citizens representing diverse disciplines, backgrounds and areas of expertise. Its principal value to the Center will be at the policy level. The Council's functions will be to: (1) review the work of the Center at critical stages (Appendix V, Project Objectives); (2) advise on broad concepts guiding the Center, including the priorities for use of resources and the means for achieving goals (Appendix V and Appendix VI. C, Administrative Policies and Procedures); (3) assist the Executive Director in relating to financial communities, legislative bodies, and other public and private entities (Appendix VIII B., Public Affairs).

The Council met twice during Phase I, on October 2, 1970, and again on November 13, 1970. The first was an orientation meeting; the second for the purpose of reviewing the Center's Phase I report to the Office of Education.

It is recommended that the Council meet at the call of the Executive Director for policy review of the Center's program at least semi-annually, and more frequently as he may deem appropriate.

Planning Advisory Committee. The Planning Advisory Committee is made up of persons of proven accomplishment in a wide variety of fields. It will function at the operations and planning level. It will: (1) assist in determining operational objectives (Appendix V, Project Objectives, and Appendix VI.A.1, Planning, and A.2, External Evaluation); (2) contribute expertise to program development (Appendix VII, Production of Programs); (3) advise on alternative operational plans; (4) help determine target audiences (Appendix IV, Target Audience Characterization); and (5) provide continuing liaison with other experts and communities (Appendices II, Information Services and VIII B, Public Affairs).

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*In Section IV, D (p. 12), "Scope and Method of Approach," of the Center's Phase I proposal, it is noted that "two Advisory Committees would be established and their roles defined during the planning stage." The definition as to organization and function of the role of the committees is also listed under "Tasks and Products (p. 24) of the original proposal.

Members of the Committee met with Center staff in two sets of workshops held on September 10-11 and September 17-18 in which specific ways of meeting environmental problems common to the many disciplines and to the interdisciplinary structure of the Center were discussed.

It is recommended that the Planning Advisory Committee meet as a full committee and in separate subcommittees, the latter designed to relate to specific Center operations, at the call of the Operations and Planning executive-in-charge in consultation with the Executive Director of the Center.

The names of the members of the Advisory Council and the Planning Advisory Committee, as well as a detailed accounting of prior meetings, will be found in Exhibits 18, 19 and 20, pages 179 through 213.

In addition to establishing and working with its own advisory bodies, the Center helped to initiate and has begun direct communication with an Environment Subcommittee of the Corporation for Public Broadcasting Advisory Committee of National Organizations. The 19 Subcommittee organizations represent a wide range of interests: Consumer Federation of America, National Association of Manufacturers, National Congress of Parents and Teachers and the National Wildlife Federation, to name a very few. A complete listing will be found in Exhibit 21.

Summary

IV. TARGET AUDIENCE CHARACTERIZATION*

The Public Broadcasting Environment Center was required to define public television and radio audiences by identifying their traits through research. The Center was to specify target populations, including, among others, primary school children and "prime time" audiences, and to describe the direction of target audience trends.

The purpose of the research was to determine baselines and directions ("vectors") for audience demographics, knowledges, attitudes and behaviors so that changes produced by PBEC programming could later be measured (see Appendix IV and Appendix VI A 2, External Evaluation).

Accordingly, the Center researched available literature and employed consultants to characterize the public broadcast audience in several ways, and compare the public and commercial audiences where possible.

The Center also analyzed which audience characteristics needed further definition and began the required audience research into both specific target audiences and general audiences.

PBEC staff involved in this effort established good working relationships with experts in research and evaluation (e.g., see Appendix III regarding workshops) and provided audience research support to planners at PBEC during Phase I.

This is what PBEC[1] discovered about the public broadcast audience:

Television Audience. There are about 58 million television households in the U.S. representing conservatively about 120 million viewers. About 75% or 43 million of these 58 million households are reached by Public television(PTV), representing, conservatively, 86 million potential PTV viewers. Of this potential, 17-18 million homes or 40% are PTV watchers, and in certain weekday time slots, about 20% of all American television households are watching PTV. This 20% represents 11 million television households or conservatively, about 22 million viewers. Furthermore, in major urban markets tested, about 65% of the total PTV households now watch PTV regularly ("last week"), and about 20% of the PTV audience said they watched "last month."

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*This report is in partial satisfaction of the requirements of "C. Program and Target Populations" in TV, Scope and Method of Approach, page 10 of the OE Grant, and responds to the requirement for "Description of Target Audiences," page 24, OE Grant.

[1] Leroy Miller, Director of Research -CPB, and E.L. Palmer, Director of Research at Children's Television Workshop, were most helpful in providing documentation not available elsewhere.

But while PTV has many viewers, PTV viewing intensity is low; the median value is about two hours per week.

There are distinct differences between PTV audience and the general U.S. population in age, education, race and income. PTV audiences are older, distinctly better educated, have higher incomes, and, some data suggests, may have a slightly higher fraction of blacks, proportionately, than other races. There is no significant audience difference by sex.

When comparing commercial television audiences to PTV audiences, the Center found that more than 90% of the total television households watch commercial television regularly, compared to the 40% that regularly watch PTV. Regular viewers watch commercial television 12 hours per week, six times as much as they watch PTV.

About 60% of all television households have a set on during "prime time," constituting a potential PTV prime-time audience of 85-100 million Americans. However, about 70% of the "average prime time" audience is captured by programming from ABC, CBS, and NBC. Therefore, about 17 million of the PTV households will be viewing the "Big Three" and seven million households (14 million people) will be watching "something else."

Many believe that PTV captures about half of the "something else" audience so that about seven million viewers in "average prime time" may be watching PTV. This is not certain; the Center believes that the PTV audience is an "In and Out" audience. That is, the PTV viewer selects deliberately a specific PTV program to view as an alternative to the "Big Three" and, when that's completed, changes that station, probably, to ABC, CBS or NBC. In one market, for example, in one time slot the PTV audience was 342,000 families; 90 minutes later, the PTV audience was only 4,500 families!

The commercial TV market is saturated and has been since 1967. The PTV audience, on the other hand, is growing rapidly in terms of audience number and market fraction, increasing 40% from 1969 to 1970, and will continue further penetration of the markets now dominated by commercial TV. Also, PTV audience trends are changing: audience growth increased in the Mid-West and West; in the younger age group; among non-high school graduates; and among black Americans; and women; and those of middle to low income.

There was no recent adequate data on the general environmental attitudes, knowledges and behaviors of PTV audiences prior to PBEC research. This was also true of commercial TV audiences.

Radio Audience. All data on radio audiences is dubious because all the credible measures have been made in the home, while much radio listening is done in automobiles, on the street, at recreation and at work. There are about 1.7 radio sets in use for every living American. "Radio homes" approach 100%. Almost every American is a radio listener. About 25% of all radio listeners listen regularly to Public Radio (50 million listeners). These listeners are older, more affluent, better educated, have professional jobs, include a disproportionately high number of white Americans and women.

There was no recent credible data concerning environmental attitudes, knowledges and behaviors of any radio audience.

Audiences Summarized. 75% can see PTV; 40% do watch PTV; 20% (11 million households) watch weekly, but viewing intensity is low. Almost everybody watches commercial television and with greater intensity than PTV. The PTV audience is older, more affluent and better educated than the commercial audience. But commercial television is not growing; PTV is growing—up 40% from last year, nationwide, and attracting a more general audience than previously.

Public radio has 50 million regular listeners who are older, affluent, well educated and seem to be women and white.

Research Planned and Performed. Confronted with these facts and need for new data, the Center planned research to determine the audience attitudes, knowledges and behaviors relative to the environment; research to better determine audience characteristics and trends in general, and radio and specific target audience traits in particular. But until Phase II the Center cannot pursue all the research that's needed. Accordingly, it started on the most important: determination of audience environmental attitudes and behaviors.

The Center, CPB and the Ford Foundation contracted for a national survey with Louis Harris & Associates which shows the American PTV audience is concerned about the quality of life and particularly the urban environment. Many expect deterioration of the quality of urban life in the future; 65% claim they are depressed by the quality of life. All responded that the five top American problems are: crime and physical safety; air and water pollution; over-crowding; housing; and transportation. However the people are hopeful that solutions can be found, in long term, and look to government to educate, persuade and legislate.

PBEC performed research in special target audiences also. Two studies showed that citizens already involved in environmental action are at work collecting and disseminating environmental information, writing letters, petitioning, cleaning up, recycling waste resources and "politicking". They think the most effective action is education and personal hard work. They don't think much of litigation, boycott and demonstration as effective methods.

Furthermore, the studies confirmed locally the national results; people are worried, think the quality of life is deteriorating steadily and will get worse, generally. They are willing to do something about it personally and financially but believe government and industry have responsibilities, too.

Conclusion and Recommendations. As a result of our Phase I audience characterization, the Center understands the general PTV and public radio audience well enough to allow PBEC to provide more effective environmental programming, now. But much research yet remains to be done. The Center has started but must continue the characterization of specific audiences. When those audiences have been characterized, PBEC will be able to provide target audience information supporting Environmental Education (Appendix X); Environmental Action (Appendix XI); Project Objectives (Appendix V), particularly as those objectives pertain to production of programs (Appendix VII); and to Communications Services (Appendix VIII A). Of special importance is the input provided to External and Internal Evaluation (Appendix VI.A, 2 & 3) allowing measurement of PBEC's over-all cost-effectiveness. Indeed the specific efforts detailed in the Recommendations of Appendix IV "Target Audience Characterization" are vital to the operation of all aspects of the PBEC System.

Summary

V. PROJECT OBJECTIVES*

The goal of this study was to define in measurable behavioral terms, wherever possible, the PBEC program objectives for both general and specific target audiences. The purpose of establishing such objectives is to facilitate the testing of a population before, during, and after exposure to PBEC programming (see Appendix V and Appendix VI A 2, External Evaluation). These tests will begin to determine PBEC's impact on environmental attitudes and behaviors and, in part, help to establish PBEC's cost-effectiveness.

Studies of literature and media efforts past, present and planned (directly and indirectly related to the environment) helped to define the Public Broadcasting Environment Center program objectives for both general and specific audiences. The Public Broadcasting Environment Center was also aided by consultants and associated colleagues. Extensive use was made of conference records and proceedings, as well as reports of the duties and functions of various commercial and non-profit, government and independent groups.

Findings. The Public Broadcasting Environment Center's investigations up to this point reveal the need for a new environmental value system (a system to stand as a national basis for increased environmentally beneficial action in both personal and group terms). An understanding of alternative life styles is essential to formation of such a value system. So is an understanding of, and attitude toward the environmental interrelationships of nature, of housing, education, employment and the quality of life—urban, suburban and rural.

Objectives. Public Broadcasting Environment Center programs for all audiences will seek to increase environmental knowledge, comprehension and activity, which will increase the nation's ability to analyze and synthesize new environmental information. Increasing attention, receptivity, awareness, responsiveness, and commitment will become part of personal value systems characterized by willingness to share environmental responsibilities and assume general concern for our common way of life.

All people will be encouraged through PBEC programs to be part of constructive, effective environmental action. One objective will be to assist opinion leaders of all levels and areas in our society in reinforcing and disseminating understanding and action which are environmentally ethical and healthy.

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*This effort responds in part to the requirements of "C. Programs and Target Populations" in IV, Scope and Method of Approach, page 10 of the O.E. Grant and satisfies the requirements of the "Project Objective Report," in Tasks and Products, page 24 of the O.E. Grant.

Children will be offered both general and specific knowledge of ecosystems which will help them to perceive and understand their interaction. Children, as well as older people, need a view of man's importance in and to nature. For children, no less than adults, a personal understanding of sound environmental values is essential if both humane and beneficial behaviors and feelings are to be reinforced and further developed.

Youth, more than adults, require avenues of realization for their environmental idealism, commitment and motivation. Public Broadcasting Environment Center programming will help here, too, by providing environmental knowledge and alternative action modes. Parents and teachers will be encouraged to enter into dialogue, motivated by their mutual concern for educational objectives. Hopefully, this will result in viable action programs involving students, teachers, parents and the community.

Community environmental action (based upon local public broadcast station support, and effected through local educational institutions, local government citizen action groups, etc.) also has had program objectives established. These objectives include the quantitative measures of involvement by local stations, enumeration and evaluation of projects initiated, etc. But we must also include objectives (perhaps not so measurable) which produce changes in community ambience and attitude, produced through exciting community action. Eventually such non-quantifiable inter-relationships will lead to beneficial environmental change.

It is anticipated that in the first year operations, PBEC will produce programs which effect the changes in knowledges, attitudes and behaviors outlined above.

Along with more general aims, specific, short-term, highly visible, measurable first year behavioral objectives will be selected early in PBEC's operational phase. These first year objectives, selected from among the general objectives outlined above, will be integrated into the program development efforts. The Environmental Education, Environmental Action and External Evaluation Groups and their advisors, consultants, and contractors will be centrally involved in the formative development process. This will assist, and in some instances, determine the structuring of these objectives into programming and assist effective evaluation of their attainment.

But PBEC will also plan some exciting, experimental programs whose impact may be difficult to measure, but are thought to advance the art of environmental education.

Various specific audiences have been identified by such designations as age, racial and ethnic character (see Appendix IV, Target Audience Characterization). Each requires its own unique measurement approach of the environmental behaviors and attitudes for which the Public Broadcasting Environment Center programming is designed, and toward which it is striving.

As a result of our studies, we conclude and recommend that program objectives (as detailed in Appendix V) should be integrated into the PBEC System in the following activities:

1. Program Development (see Production of Programs, Appendix VII)
2. Environmental Education (See Appendix X)
3. Environmental Action (See Appendix XI)

If successfully integrated, and providing objectives toward which all PBEC production activities can strive, then External and Internal Evaluation (Appendix VI. A.2 & 3) will be capable of evaluating PBEC's cost-effectiveness and the attainment of the PBEC System environmental educational goals and objectives.

VI. ADMINISTRATION

Summary

VI A. MANAGEMENT

It was necessary for the Public Broadcasting Environment Center to create a management system which would assure that forward planning and current decision-making were based to the extent possible on knowledge of past successes and failures—that is, on what had worked and what had not worked in the experience of the Center, its grantees, its contractors and others.

The need for an interrelated system of evaluation, controls, and planning has been well established in the space industry and elsewhere; there was every reason to believe it could be applied to the Center, where so many new combinations of concepts, services and products were to be attempted. In formulating this management system, a key staff member and a key consultant brought to bear years of experience in aerospace and related industry (see VI B, Organization and Staffing). At the same time, others were experienced in educational and social science evaluation techniques, necessary to a humanistic venture such as the Center's.

The resulting system is described as three pursuits in the following three summaries. In practice, however, the value of each part of the system will depend entirely on how it relates to the other two parts, and ultimately, how the three parts taken as a whole help the Center succeed and improve as it serves the needs of environmental education.

Summary

VI A 1. PLANNING*

The Public Broadcasting Environment Center requires a valid, tested plan to describe the operations to be pursued in the next five years to attain the PBEC System goals and objectives. Essentially everything PBEC did during Phase I was part of this planning effort, but this report summarizes, in a formal way, the structure of the PBEC short-range and long-range plan for the coming years.

To develop the plan PBEC used consultants to give direction to the planning efforts of the PBEC senior staff. Systems analytic planning techniques, using a variation of input-output methods, were used. A series of consultative sessions with PBEC senior staff, coupled with frequent reviews, incorporated the staff's best concepts, approaches and professional experience into the plan.

PBEC's goal and objectives were defined and products were specified, all in light of realistic constraints. Strategies to attain the objectives were developed and evaluated in cost/benefit terms. The strategies were converted into functional activities and related to product/objective attainment.

Control and evaluation mechanisms were constructed. The whole system was tested for coherence, rationality and operability and refined accordingly to improve potential cost-effectiveness. Schedules and budgets were projected and the plan reiterated several times. The plan was graphically represented. The relationship of the Phase I effort and the proposed Phase II effort is shown in Fig. 1. A detailed expression of the operation of the plan is shown graphically in Fig. 1A, illustrating in detail the operation of the PBEC System. Fig. 2 shows a proposed organization chart for the PBEC System in its 1971 operational phase.

The results of the PBEC System planning effort essentially appear in written form as the substance of the PBEC Final Report, Volume I and is only formally summarized here.

As a result of the planning effort we recommend that the plan be implemented during the coming years. Only through such implementation will the goals and objectives of the PBEC System be realized.

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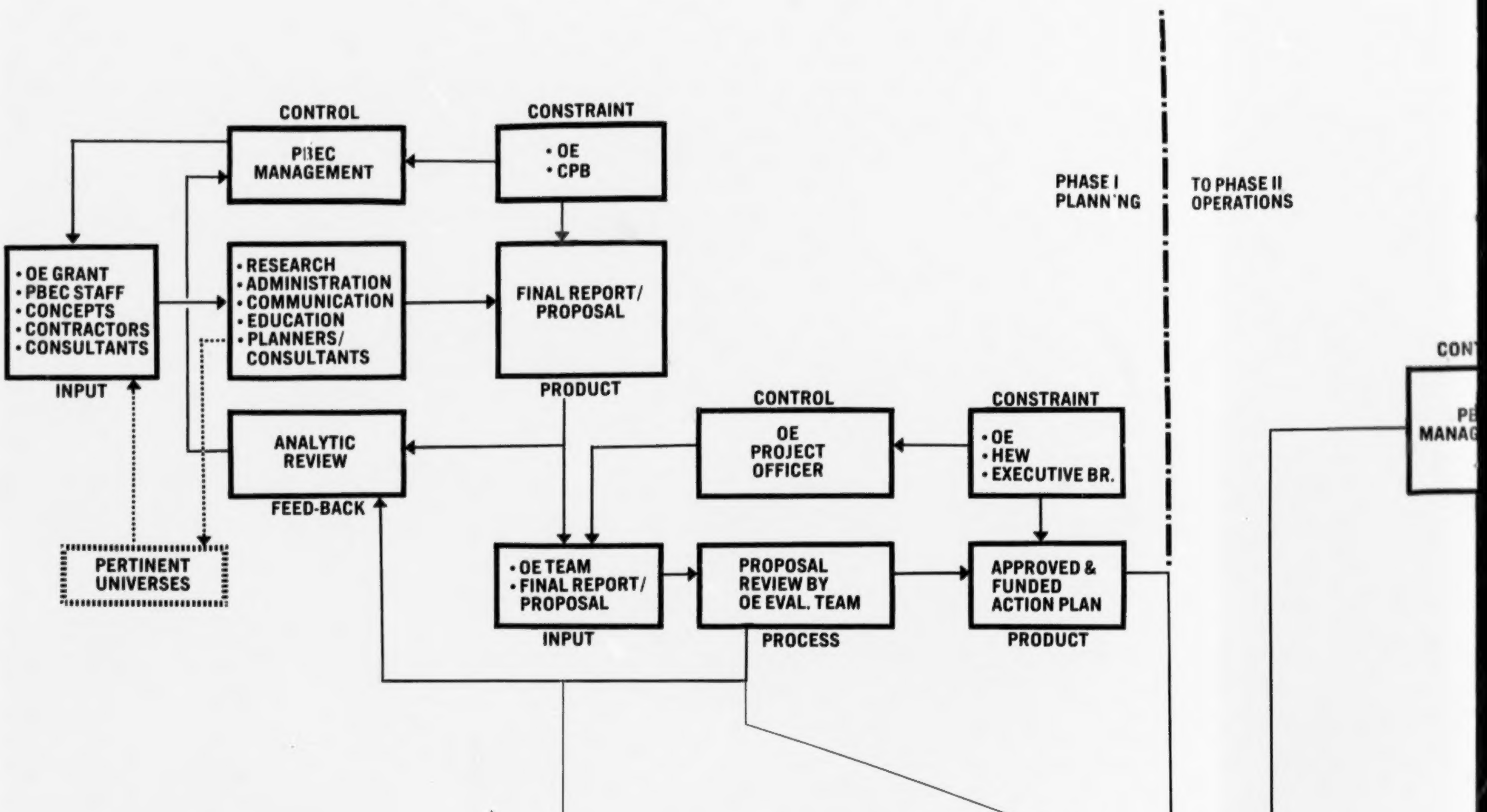
* This effort is responsive in part to "C. Programs and Target Populations" and "F. Scheduling and Control" of IV. Scope and Method of Approach, page 10 of the OE Grant, and "System Report" and "Management Controls, Internal Evaluation, External Evaluation Report," of Tasks and Products, page 24 of the OE Grant.


CONTROL
PBEC MANAGEMENT
CONSTRAINT
• OE
• CPB
• OE GRANT
• PBEC STAFF
• CONCEPTS
• CONTRACTORS
• CONSULTANTS
INPUT
• RESEARCH
• ADMINISTRATION
• COMMUNICATION
• EDUCATION
• PLANNERS/ CONSULTANTS
FINAL REPORT/ PROPOSAL
PRODUCT
ANALYTIC REVIEW
FEED-BACK
PERTINENT UNIVERSES
CONTROL
OE PROJECT OFFICER
CONSTRAINT
• OE
• HEW
• EXECUTIVE BR.
• OE TEAM
• FINAL REPORT/ PROPOSAL
INPUT
PROPOSAL REVIEW BY OE EVAL. TEAM
PROCESS
APPROVED & FUNDED ACTION PLAN
PRODUCT
PHASE I PLANNING
TO PHASE II OPERATIONS
CON
PB
MANAG
• ACTION PLAN
• FUNDS
• PBEC STAFF
• FACILITIES
• CONTRACTORS
• CONSULTANTS
INPUT
STRAT
TACTI
IN OPE
(SEE FI
DETAIL
PROC
PERTINENT UNIVERSES (PUBLIC AFFAIRS) (FUNDING) (INFO. SOURCES)
REVIEW CYCLE START
TASKS COMPLETE
CONCLUSIONS & RECOMMENDS
FIRST DRAFT
FINAL DRAFT
SUBMIT AND REVIEW
FUNDING
PBEC SYSTEM EST.
PRODUCTION STARTS
STATION SUPPORT BEGINS
SPOTS
NEWS
J
J
A
S
O
N
D
J
F
M
A
M
J

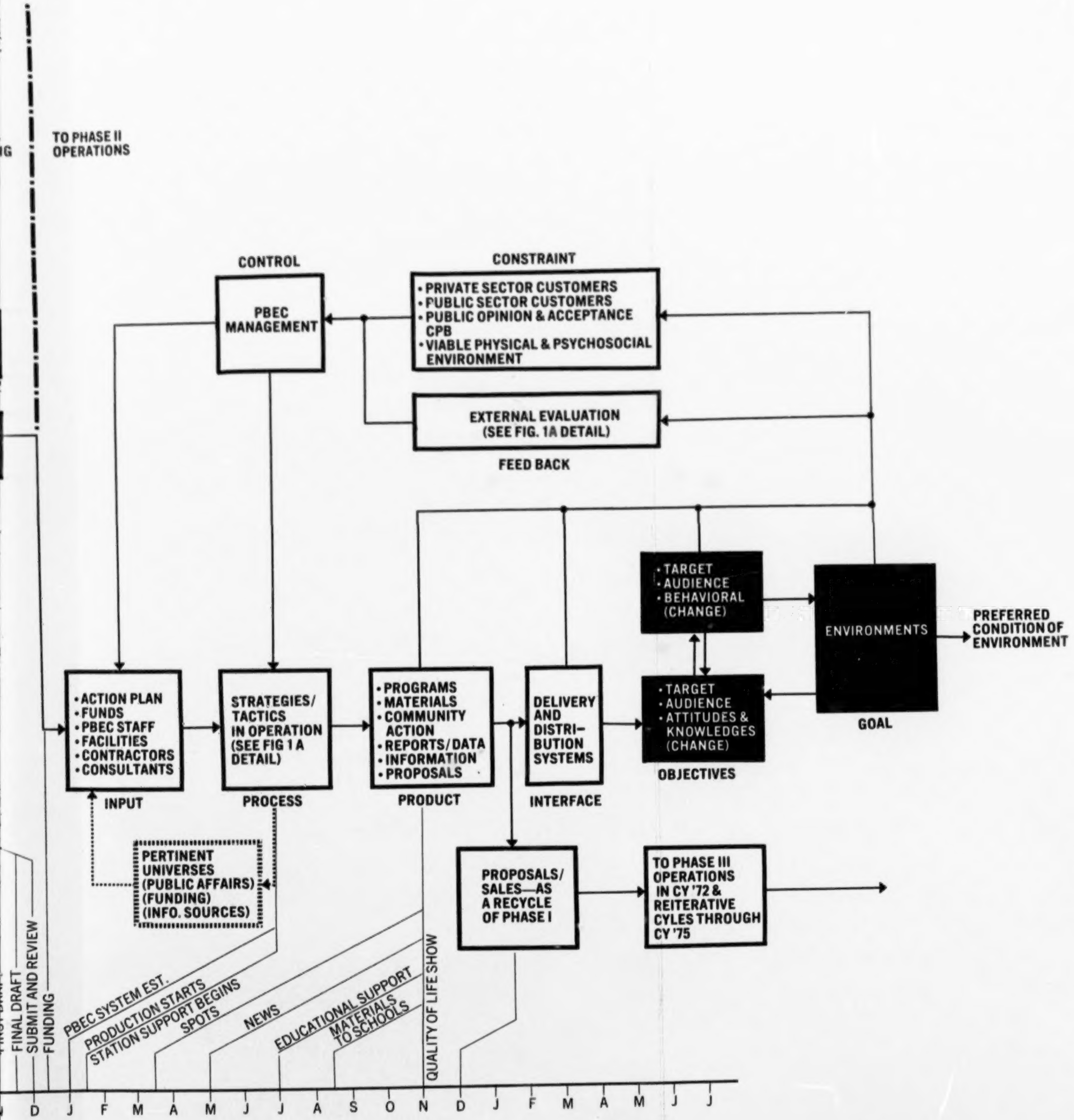

TO PHASE II OPERATIONS
CONTROL
PBEC MANAGEMENT
CONSTRAINT
• PRIVATE SECTOR CUSTOMERS
• PUBLIC SECTOR CUSTOMERS
• PUBLIC OPINION & ACCEPTANCE CPB
• VIABLE PHYSICAL & PSYCHOSOCIAL ENVIRONMENT
EXTERNAL EVALUATION (SEE FIG. 1A DETAIL)
FEED BACK
• TARGET AUDIENCE • BEHAVIORAL (CHANGE)
ENVIRONMENTS
PREFERRED CONDITION OF ENVIRONMENT
GOAL
• TARGET • AUDIENCE • ATTITUDES & KNOWLEDGES (CHANGE)
OBJECTIVES
• ACTION PLAN • FUNDS • PBEC STAFF • FACILITIES • CONTRACTORS • CONSULTANTS
INPUT
STRATEGIES/ TACTICS IN OPERATION (SEE FIG 1 A DETAIL)
PROCESS
• PROGRAMS • MATERIALS • COMMUNITY ACTION • REPORTS/DATA • INFORMATION • PROPOSALS
PRODUCT
DELIVERY AND DISTRIBUTION SYSTEMS
INTERFACE
PERTINENT UNIVERSES (PUBLIC AFFAIRS) (FUNDING) (INFO. SOURCES)
PROPOSALS/ SALES—AS A RECYCLE OF PHASE I
TO PHASE III OPERATIONS IN CY '72 & REITERATIVE CYLES THROUGH CY '75
FINAL DRAFT
SUBMIT AND REVIEW
FUNDING
PBEC SYSTEM EST.
PRODUCTION STARTS
STATION SUPPORT BEGINS
SPOTS
NEWS
EDUCATIONAL SUPPORT
MATERIALS TO SCHOOLS
QUALITY OF LIFE SHOW
D J F M A M J J A S O N D J F M A M J J

FIG 1.

SYSTEMS SCHEMATIC FOR PHASES I & II

(showing current planning effort in phase I and proposed operations in phase II.)

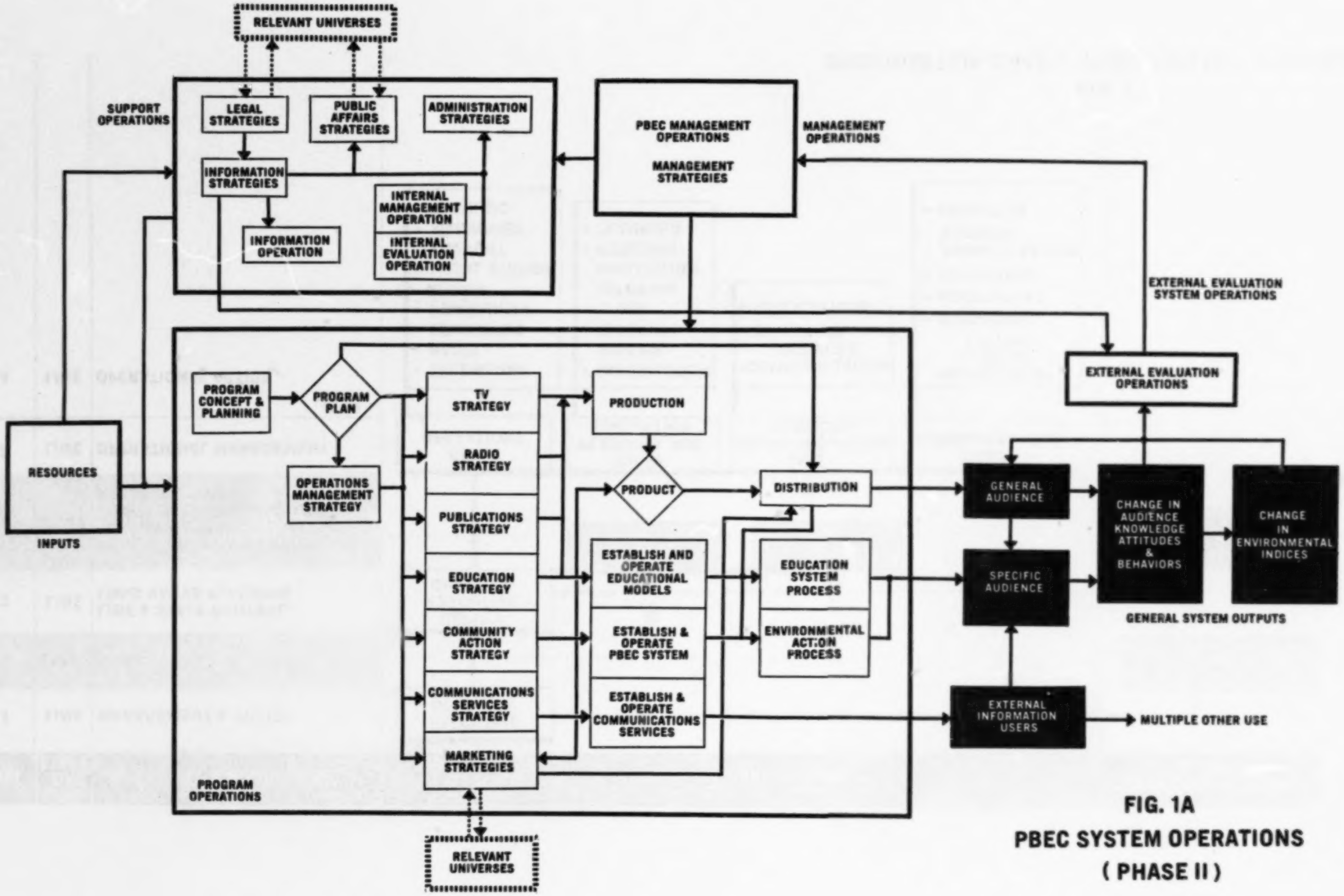

RELEVANT UNIVERSES
SUPPORT OPERATIONS
LEGAL STRATEGIES
PUBLIC AFFAIRS STRATEGIES
ADMINISTRATION STRATEGIES
INFORMATION STRATEGIES
INTERNAL MANAGEMENT OPERATION
INTERNAL EVALUATION OPERATION
INFORMATION OPERATION
PBEC MANAGEMENT OPERATIONS
MANAGEMENT STRATEGIES
MANAGEMENT OPERATIONS
EXTERNAL EVALUATION SYSTEM OPERATIONS
EXTERNAL EVALUATION OPERATIONS
RESOURCES
INPUTS
PROGRAM CONCEPT & PLANNING
PROGRAM PLAN
OPERATIONS MANAGEMENT STRATEGY
TV STRATEGY
RADIO STRATEGY
PUBLICATIONS STRATEGY
EDUCATION STRATEGY
COMMUNITY ACTION STRATEGY
COMMUNICATIONS SERVICES STRATEGY
MARKETING STRATEGIES
PRODUCTION
PRODUCT
DISTRIBUTION
ESTABLISH AND OPERATE EDUCATIONAL MODELS
ESTABLISH & OPERATE PBEC SYSTEM
ESTABLISH & OPERATE COMMUNICATIONS SERVICES
EDUCATION SYSTEM PROCESS
ENVIRONMENTAL ACTION PROCESS
PROGRAM OPERATIONS
RELEVANT UNIVERSES
GENERAL AUDIENCE
SPECIFIC AUDIENCE
EXTERNAL INFORMATION USERS
CHANGE IN AUDIENCE KNOWLEDGE ATTITUDES & BEHAVIORS
CHANGE IN ENVIRONMENTAL INDICES
GENERAL SYSTEM OUTPUTS
MULTIPLE OTHER USE

FIG. 1A
PBEC SYSTEM OPERATIONS
(PHASE II)

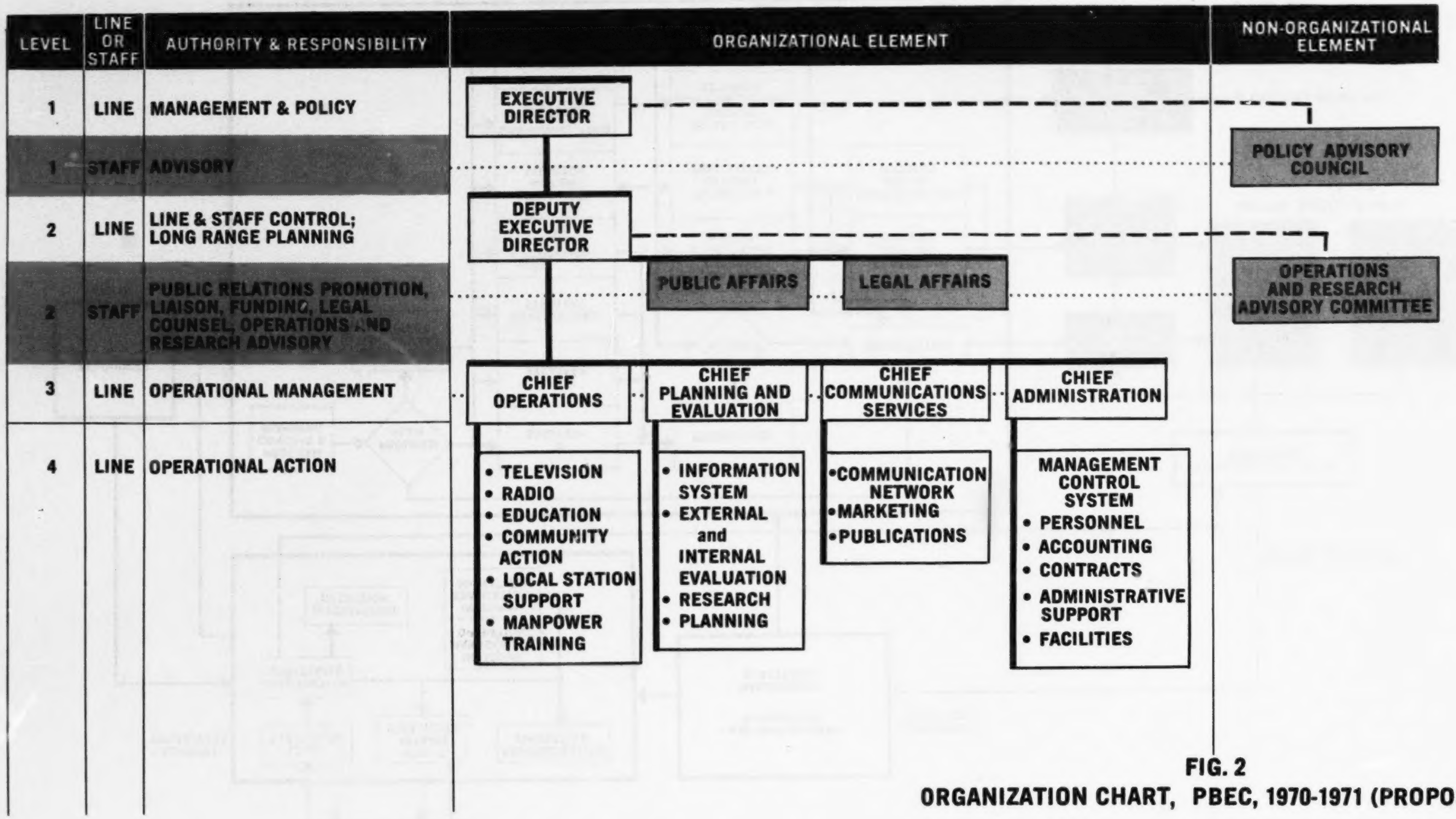

LEVEL
LINE OR STAFF
AUTHORITY & RESPONSIBILITY
ORGANIZATIONAL ELEMENT
NON-ORGANIZATIONAL ELEMENT
1
LINE
MANAGEMENT & POLICY
EXECUTIVE DIRECTOR
1
STAFF
ADVISORY
POLICY ADVISORY COUNCIL
2
LINE
LINE & STAFF CONTROL; LONG RANGE PLANNING
DEPUTY EXECUTIVE DIRECTOR
2
STAFF
PUBLIC RELATIONS PROMOTION, LIAISON, FUNDING, LEGAL COUNSEL, OPERATIONS AND RESEARCH ADVISORY
PUBLIC AFFAIRS
LEGAL AFFAIRS
OPERATIONS AND RESEARCH ADVISORY COMMITTEE
3
LINE
OPERATIONAL MANAGEMENT
CHIEF OPERATIONS
CHIEF PLANNING AND EVALUATION
CHIEF COMMUNICATIONS SERVICES
CHIEF ADMINISTRATION
4
LINE
OPERATIONAL ACTION
• TELEVISION
• RADIO
• EDUCATION
• COMMUNITY ACTION
• LOCAL STATION SUPPORT
• MANPOWER TRAINING
• INFORMATION SYSTEM
• EXTERNAL and INTERNAL EVALUATION
• RESEARCH
• PLANNING
•COMMUNICATION NETWORK
•MARKETING
•PUBLICATIONS
MANAGEMENT CONTROL SYSTEM
• PERSONNEL
• ACCOUNTING
• CONTRACTS
• ADMINISTRATIVE SUPPORT
• FACILITIES

FIG. 2

ORGANIZATION CHART, PBEC, 1970-1971 (PROPOSED)

Summary

VI A 2. EXTERNAL EVALUATION*

The Public Broadcasting Environment Center is required to devise a plan for an external evaluation system in order to measure the PBEC System's effectiveness in changing environmental understanding, attitudes and behaviors. Such information will be used to improve program impact and PBEC's cost effectiveness.

Audiences will be tested before, during and after exposure to PBEC programming and products in an attempt to determine the program effects. The programs and products will then be adjusted to reach the desired behavioral goals (see Appendix V, Project Objectives).

The plan for the external evaluation system (EES) was developed with consultants expert in audience and educational evaluation and a skilled systems contractor who assisted in system design.

Standard systems analytic techniques were modified to define EES goals, objectives and alternative strategies. Goals, objectives, and strategies were then translated into a conceptual evaluation model, and related the EES model to PBEC operations.

Figure 1 shows how the EES model fits into the over-all PBEC System and indicates how the EES measures PBEC products, evaluates their effect on audiences and observes resulting changes in the environment. After analysis, the product/audience/environmental information is used by PBEC management to improve PBEC programming and by Internal Evaluation to judge PBEC's cost effectiveness.

Figure 2 shows how EES internally operates to act upon the measurement information and convert it to data PBEC can use to improve its performance.

The operational detail design of the evaluation system is shown in Figure 3. Here is illustrated the proposed "top-down" approach to evaluation. Each goal is related to an environmental objective which can in turn be tied to a given specific audience. The audience behavior change (related to the objective) is

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*This is in partial response to the requirements of "G. Progress Reports and Evaluation," page 13 of IV, Scope and Method of Approach, of the OE Grant. It satisfies also in part the requirements of "Management Controls, Internal Evaluation, External Evaluation Report " of Tasks and Products, page 24 of the OE Grant.

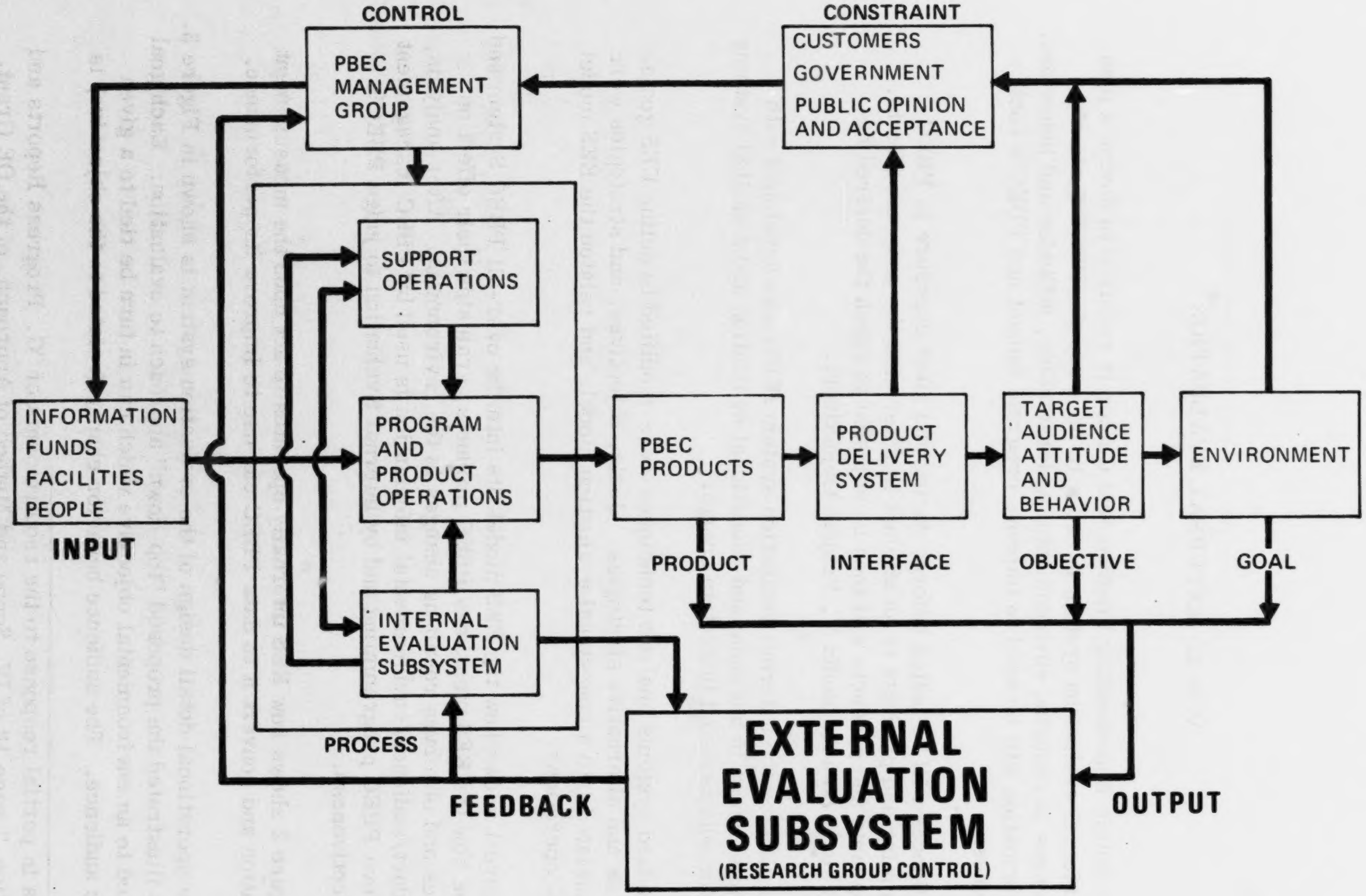
CONTROL
PBEC MANAGEMENT GROUP
CONSTRAINT
CUSTOMERS
GOVERNMENT
PUBLIC OPINION AND ACCEPTANCE
INFORMATION
FUNDS
FACILITIES
PEOPLE
INPUT
SUPPORT OPERATIONS
PROGRAM AND PRODUCT OPERATIONS
INTERNAL EVALUATION SUBSYSTEM
PROCESS
PBEC PRODUCTS
PRODUCT DELIVERY SYSTEM
TARGET AUDIENCE ATTITUDE AND BEHAVIOR
ENVIRONMENT
PRODUCT
INTERFACE
OBJECTIVE
GOAL
EXTERNAL EVALUATION SUBSYSTEM
(RESEARCH GROUP CONTROL)
FEEDBACK
OUTPUT

FIG. 1 THE ROLE OF THE EES IN THE PBEC SYSTEM

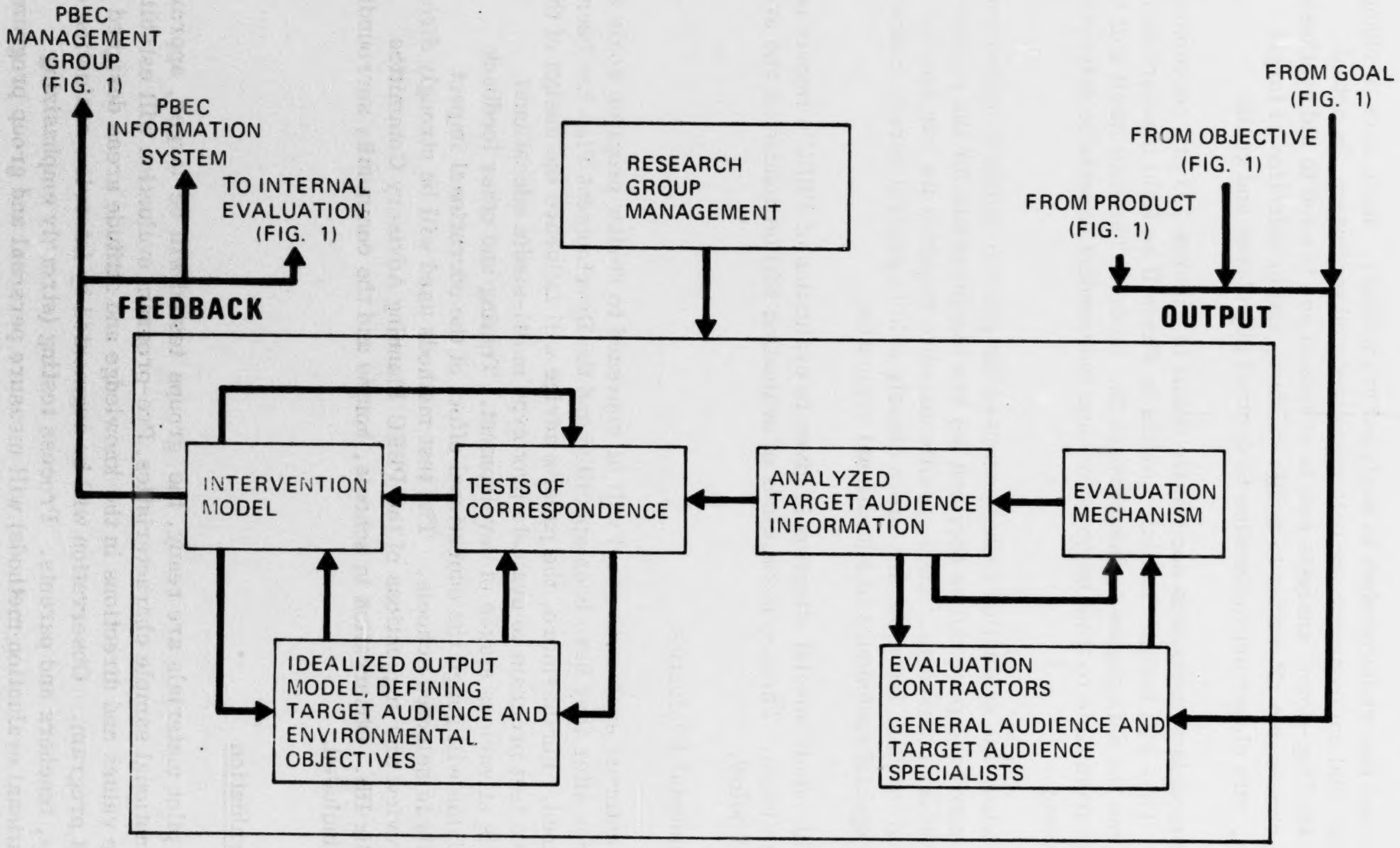
PBEC MANAGEMENT GROUP (FIG. 1)
PBEC INFORMATION SYSTEM
TO INTERNAL EVALUATION (FIG. 1)
FEEDBACK
RESEARCH GROUP MANAGEMENT
FROM PRODUCT (FIG. 1)
FROM OBJECTIVE (FIG. 1)
FROM GOAL (FIG. 1)
OUTPUT
INTERVENTION MODEL
TESTS OF CORRESPONDENCE
ANALYZED TARGET AUDIENCE INFORMATION
EVALUATION MECHANISM
IDEALIZED OUTPUT MODEL, DEFINING TARGET AUDIENCE AND ENVIRONMENTAL OBJECTIVES
EVALUATION CONTRACTORS
GENERAL AUDIENCE AND TARGET AUDIENCE SPECIALISTS

FIG. 2 EXTERNAL EVALUATION SUBSYSTEM

specified and the media product is designed accordingly. Indicators of change in behavior and environment are both measured and evaluated. In actual practice the "top-down" analysis now is reversed and is used to aid synthesis, allowing successive alteration in media product, and in selection of target audience, with closer approximation to desired objectives and goals.

The models presented in successive detail in Figures 1-3 are conceptual models. They will become analytic models in Phase II as field measurement begins, and the data begins to flow through the model. The EES itself will be evaluated from time to time by objective and independent experts to determine its efficiency.

Obviously the evaluation techniques used for general audience measurement (sophisticated and powerful as they can be) are inappropriate for the primary and secondary classroom. Each specific audience requires its own special evaluation method, but most are more closely akin to general survey methods than the special techniques of educational evaluation.

In this study special attention is given to evaluation of PBEC's impact on school children. Three general kinds of evaluation will be conducted and are sketched below.

Developmental Evaluation

An external evaluation panel will be convened to review program goals and objectives after they have been specified and the Development Plan has been determined. Furthermore, the panel's advice will influence the design of the formative test program to evaluate prototype multi-media educational materials at various stages of development. Testing and other feedback mechanisms will gauge the educational effect of the educational impact materials in selected schools. The test methods used will be strongly directed by the review and suggestions of the PBEC Planning Advisory Committee (Appendix III). Observation in schools, homes and the community surroundings will be included.

Pilot Evaluation

As pilot materials are ready, the groups tested will be larger, approximating national sample characteristics. Pre-program evaluation will establish baseline values and directions in the knowledge and attitude areas designed into the pilot program. Observation will be augmented by interview evaluation of students, teachers and parents. Process testing (strongly emphasizing observational evaluation methods) will measure personal and group program impact, acceptability and appeal. Finally, testing after pilot exposure will emphasize measurable changes of environmental knowledges, attitudes and behaviors.

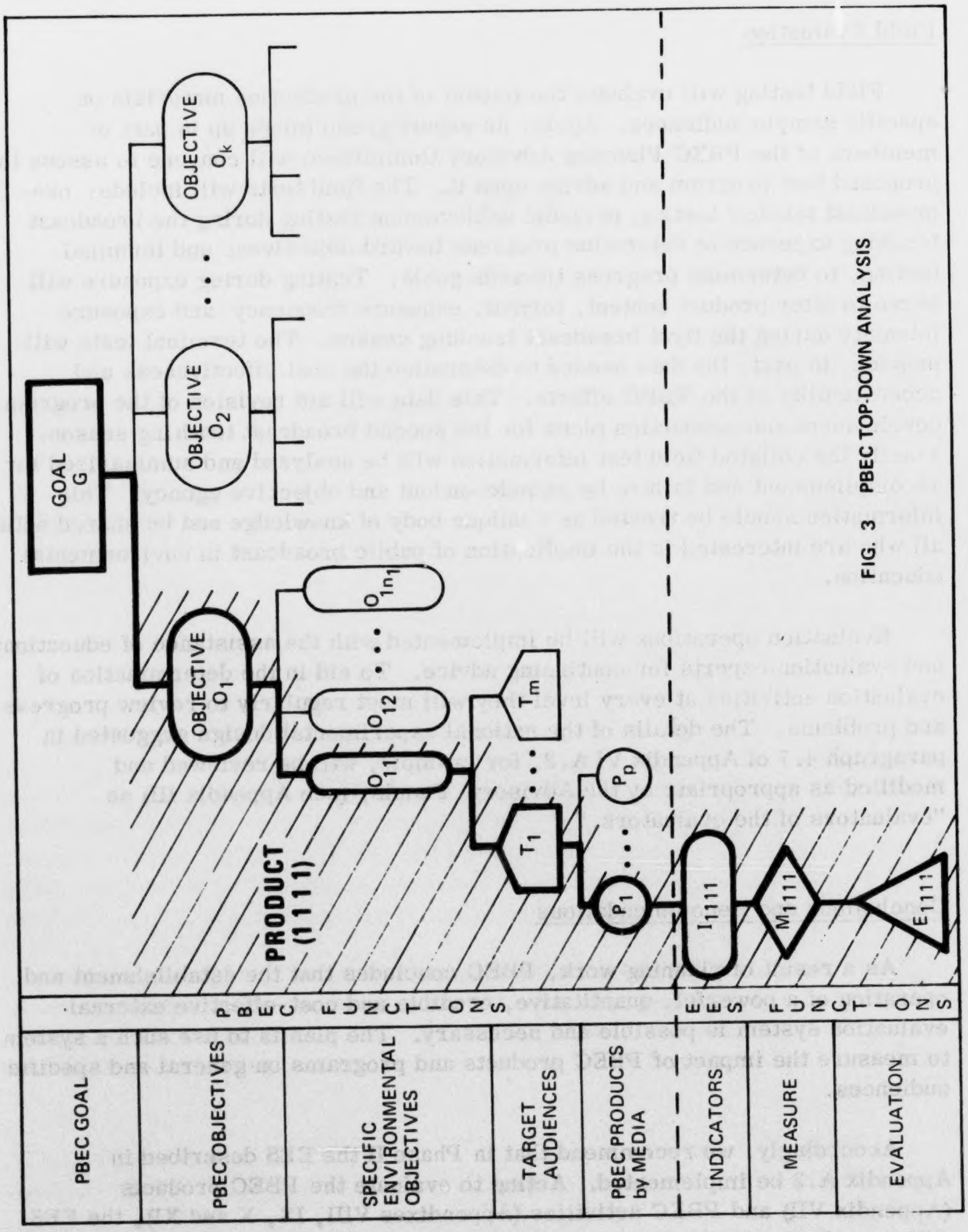
PBEC GOAL
PBEC OBJECTIVES
SPECIFIC ENVIRONMENTAL OBJECTIVES
TARGET AUDIENCES
PBEC PRODUCTS by MEDIA
INDICATORS
MEASURE
EVALUATION
PBEC FUNCTIONS
EES FUNCTIONS
GOAL G
OBJECTIVE O1
OBJECTIVE O2
OBJECTIVE Ok
PRODUCT (1111)
O11
O12
O1n1
T1
Tm
P1
Pp
I1111
M1111
E1111

FIG 3. PBEC TOP-DOWN ANALYSIS

Reduced and analyzed results will be reviewed by an expert panel used to modify the format and content of production release materials then being planned.

Field Evaluation

Field testing will evaluate the impact of the production materials on specific sample audiences. Again, an expert group (made up in part of members of the PBEC Planning Advisory Committee) will convene to assess the proposed test program and advise upon it. The field tests will include: pre-broadcast teacher testing; periodic achievement testing during the broadcast teaching exposure to determine progress toward objectives; and terminal testing, to determine progress towards goals. Testing during exposure will serve to alter product content, format, exposure frequency and exposure intensity during the first broadcast teaching season. The terminal tests will provide, in part, the data needed to determine the cost effectiveness and accountability of the PBEC efforts. This data will aid revision of the program development and production plans for the second broadcast teaching season. Finally the collated field test information will be analyzed and summarized for accomplishment and failure by an independent and objective agency. This information should be treated as a unique body of knowledge and be shared with all who are interested in the implication of public broadcast in environmental education.

Evaluation operations will be implemented with the assistance of educational and evaluation experts for continuing advice. To aid in the determination of evaluation activities at every level they will meet regularly to review progress and problems. The details of the national experimental design suggested in paragraph 4.7 of Appendix VI A.2, for example, will be reviewed and modified as appropriate by the Advisory Panels, (see Appendix III) as "evaluators of the evaluators."

Conclusions and Recommendations

As a result of planning work, PBEC concludes that the establishment and operation of a powerful, quantitative, credible and cost-effective external evaluation system is possible and necessary. The plan is to use such a system to measure the impact of PBEC products and programs on general and specific audiences.

Accordingly, we recommend that in Phase II the EES described in Appendix A.2 be implemented. Acting to evaluate the PBEC products (Appendix VII) and PBEC activities (Appendixes VIII, IX, X and XI), the EES will provide the feedback information allowing PBEC's Management to realize, most cost-effectively, the goals and objectives of the PBEC System.

Summary

VI A 3. MANAGEMENT CONTROL AND INTERNAL EVALUATION[1]

A specific objective of the Phase I planning period was to conceptualize and document a management control and internal evaluation system that could be implemented during the first action year, and would support the staff's efforts to continually improve operations and planning.

Work completed by the end of Phase I includes: design and documentation of the PBEC Management Control and Internal Evaluation System[2] concept, its key elements, and how it will operate in Phase II; a definition of the linkage between internal and external evaluation; development of a functional organizational concept; drafting of some immediately required administrative policies and procedures that will later become part of the details of the Internal Operations Control Program; development of operations flow charts for later incorporation into the Production Control Program and Distribution Control Program; development of a work program and budget for implementing the Management Control and Evaluation System during Phase II; and development of a first draft of the three planning elements of the MCS.

The Phase I strategy and work methods used to design the PBEC Management Control and Internal Evaluation System were as follows:

Define the goals and objectives of PBEC.

Define the functions and activities that must be undertaken by PBEC to accomplish goals and objectives.

Define the types of management (planning, operations, and evaluation) responsibilities that must be fulfilled in each functional area.

Design planning, operations control, and support elements to suit the above requirements.

Combine these elements into a comprehensive PBEC Management System.

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[1] This task was in response to items F and G of Scope and Methods section of the OE Grant, and tasks J and K of the Tasks and Products Section of the OE Grant.

[2] The Internal Evaluation System has been designed as an integral part of the overall Management Control System.

Conclusions and Recommendations. As a result of Phase I analysis, the Center recommends:

That PBEC develop an eight-element PPBS-oriented comprehensive Management Control System, as shown in Figure 1 and described in the narrative attached to Figure 1, consisting of a Five-Year Forecase, Divisional Operating Projections, Annual Program Plan, Internal Operations Control Program, Production Control Program, Distribution Control Program,[3] Management Information Procedures, and Internal Evaluation Procedures.

That all elements of the system be operational (manually) by approximately June 1, 1971.

That the planning elements of the system (Five Year Forecast, Division Operating Projections, Annual Program Plan) be developed in draft form while Phase I planning is being completed, and ready for management approval by January 1, 1971.

That the operational elements of the system (Internal Operations, Production, and Distribution Control Programs) be developed during the first three months of Phase II, and be fully operational by March 1, 1971, and that certain included elements (i.e. TV production control, and accounting controls) be developed as soon as possible.

That the support elements of the Management System (Information System and Internal Evaluation Procedures) be developed on an "as-needed" basis during the period from January 1, 1971 through June 1, 1971, and that all basic aspects of these two sub-systems be operational (manually) at that time.

That computer programs be developed for two control sub-elements—accounting procedures within the Internal Operations Control Program, and TV Production Scheduling within the Production Control Program—as soon as manual procedures have been tested and necessary modifications completed (approximately June 1, 1971).

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[3] Used to monitor external use of programs and materials developed by PBEC.

That a feasibility study and subsequent development of computer programs applicable to other Management Information System elements be initiated as soon as testing and modification of the manual system has been completed (approximately September 1, 1971). (Note that the manual Management Information System will be initially designed for computer compatibility.)

That a series of periodic internal operations, production and distribution evaluation reports be developed and implemented as part of the operational MCS.

That provision be made for developing special evaluation reports as internal operations and external inputs suggest the need.

That Systems Analyses, Cost-Benefit, Cost-Effectiveness, and Operations Research techniques be implemented as part of the Internal Evaluation Procedures (a sub-system of the PBEC Management Control System) as needed early in Phase II operations, and that the Internal and External Evaluation Procedures be integrated where feasible.

That a formal and on-the-job staff training program on the purpose and use of management information controls be designed and conducted by the MCS contractor, to be initiated by April 1, 1971, and continued as needed for the remainder of Phase II operations. This training should be available to internal staff initially, and then should be provided to external groups (local stations, TV production contractors, etc.) as necessary to improve overall PBEC control of operations.

That management control, management information, and operations analysis technical assistance be made available to local stations and other units of the overall PBEC Education System.

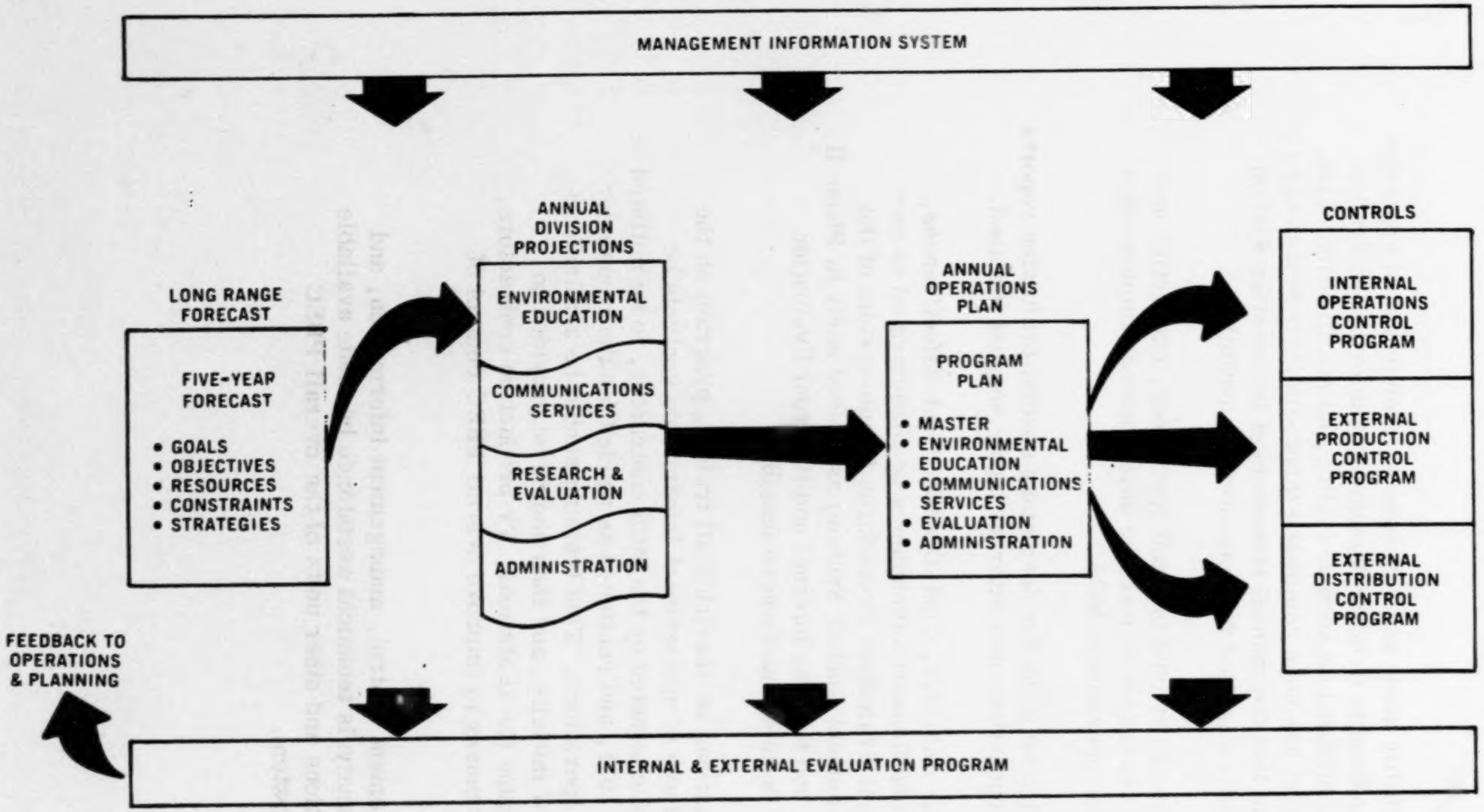
MANAGEMENT INFORMATION SYSTEM
LONG RANGE FORECAST
FIVE-YEAR FORECAST
• GOALS
• OBJECTIVES
• RESOURCES
• CONSTRAINTS
• STRATEGIES
ANNUAL DIVISION PROJECTIONS
ENVIRONMENTAL EDUCATION
COMMUNICATIONS SERVICES
RESEARCH & EVALUATION
ADMINISTRATION
ANNUAL OPERATIONS PLAN
PROGRAM PLAN
• MASTER
• ENVIRONMENTAL EDUCATION
• COMMUNICATIONS SERVICES
• EVALUATION
• ADMINISTRATION
CONTROLS
INTERNAL OPERATIONS CONTROL PROGRAM
EXTERNAL PRODUCTION CONTROL PROGRAM
EXTERNAL DISTRIBUTION CONTROL PROGRAM
FEEDBACK TO OPERATIONS & PLANNING
INTERNAL & EXTERNAL EVALUATION PROGRAM

Fig. 1
PBEC MANAGEMENT CONTROL SYSTEM SUMMARY FLOW CHART

Narrative to Accompany Figure 1

A recommended Management System concept has been designed to function within a five year planning and evaluation cycle and a series of one-year detailed implementation cycles. It contains eight major subsystems: Five-Year Forecast; Division Operating Projections; Annual Program Plan; Internal Operations Control Program; Production Control Program; Distribution Control Program; Internal Evaluation Program; and Management Information System. It is also tied directly into, and interacts with, the External Evaluation Program (see Appendix VI.A.2.)

At the beginning of a five year planning and evaluation cycle, the PBEC Executive Director and his staff would develop a Five-Year Forecast outlining PBEC's goals, objectives, resources, constraints, and strategy for using resources to attain goals and objectives. This Five-Year Forecast would then be given to PBEC Division Directors as a guideline for developing their Division Operating Projections. Each Division Director would develop a statement of objectives, a task-time work schedule for meeting first year objectives, an organization and staffing plan, and a first year budget request.

After reconciliation, each division's projection would be incorporated into the Annual Program Plan. This plan would contain the PBEC Objectives Statement, a PBEC Master Work Program, an Organization and Staffing Plan, and an Operating Budget; all compiled from the divisional requirements. This Annual Program Plan would thus become the master guide for conducting and controlling the coming year's operations.

Three separate subsystems would be used to establish management control over PBEC internal and external operations. The Internal Operations Control Program would monitor the operations of each PBEC division to assist them to meet planned objectives on time and within budget. The Production Control Program[4] would monitor external elements of TV film, radio script, and supplemental materials production from concept to distribution. The Distribution Control Program[5] would monitor external activities that were unique to the distribution function.

The Management Information System (Fig. 8) will tie together all internal and external elements of the PBEC Management System, will interact with the External Evaluation System, and with all outside users and suppliers of PBEC related information. The Internal Evaluation System (Fig. 7) is also closely associated with every element in the PBEC Management System. It takes its focus from the goals and objectives that are established during planning. It

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4 & 5. The Production and Distribution Control Programs may later be combined into subject areas control.

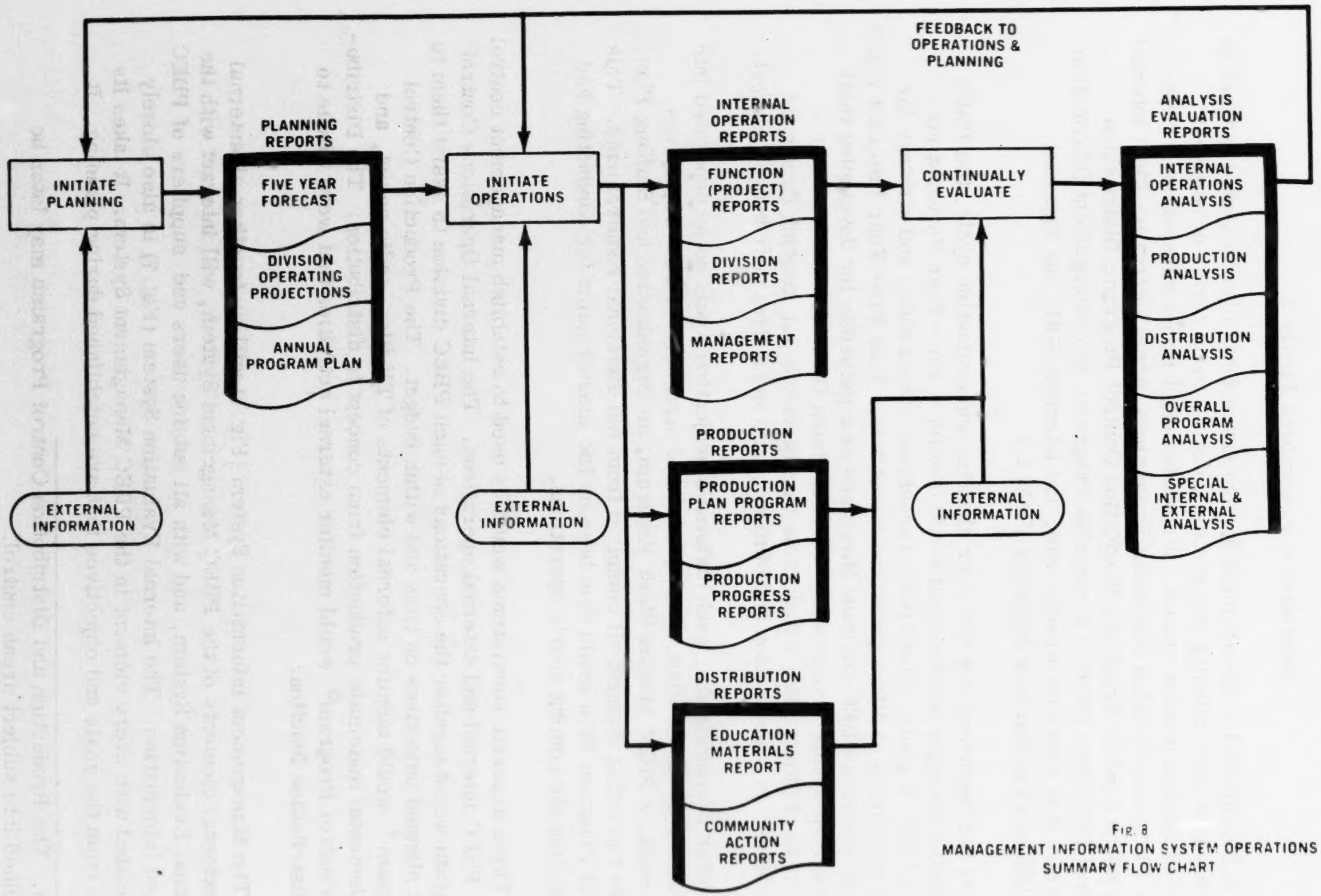
FEEDBACK TO OPERATIONS & PLANNING
INITIATE PLANNING
EXTERNAL INFORMATION
PLANNING REPORTS
FIVE YEAR FORECAST
DIVISION OPERATING PROJECTIONS
ANNUAL PROGRAM PLAN
INITIATE OPERATIONS
EXTERNAL INFORMATION
INTERNAL OPERATION REPORTS
FUNCTION (PROJECT) REPORTS
DIVISION REPORTS
MANAGEMENT REPORTS
PRODUCTION REPORTS
PRODUCTION PLAN PROGRAM REPORTS
PRODUCTION PROGRESS REPORTS
DISTRIBUTION REPORTS
EDUCATION MATERIALS REPORT
COMMUNITY ACTION REPORTS
CONTINUALLY EVALUATE
EXTERNAL INFORMATION
ANALYSIS EVALUATION REPORTS
INTERNAL OPERATIONS ANALYSIS
PRODUCTION ANALYSIS
DISTRIBUTION ANALYSIS
OVERALL PROGRAM ANALYSIS
SPECIAL INTERNAL & EXTERNAL ANALYSIS

Fig. 8
MANAGEMENT INFORMATION SYSTEM OPERATIONS
SUMMARY FLOW CHART

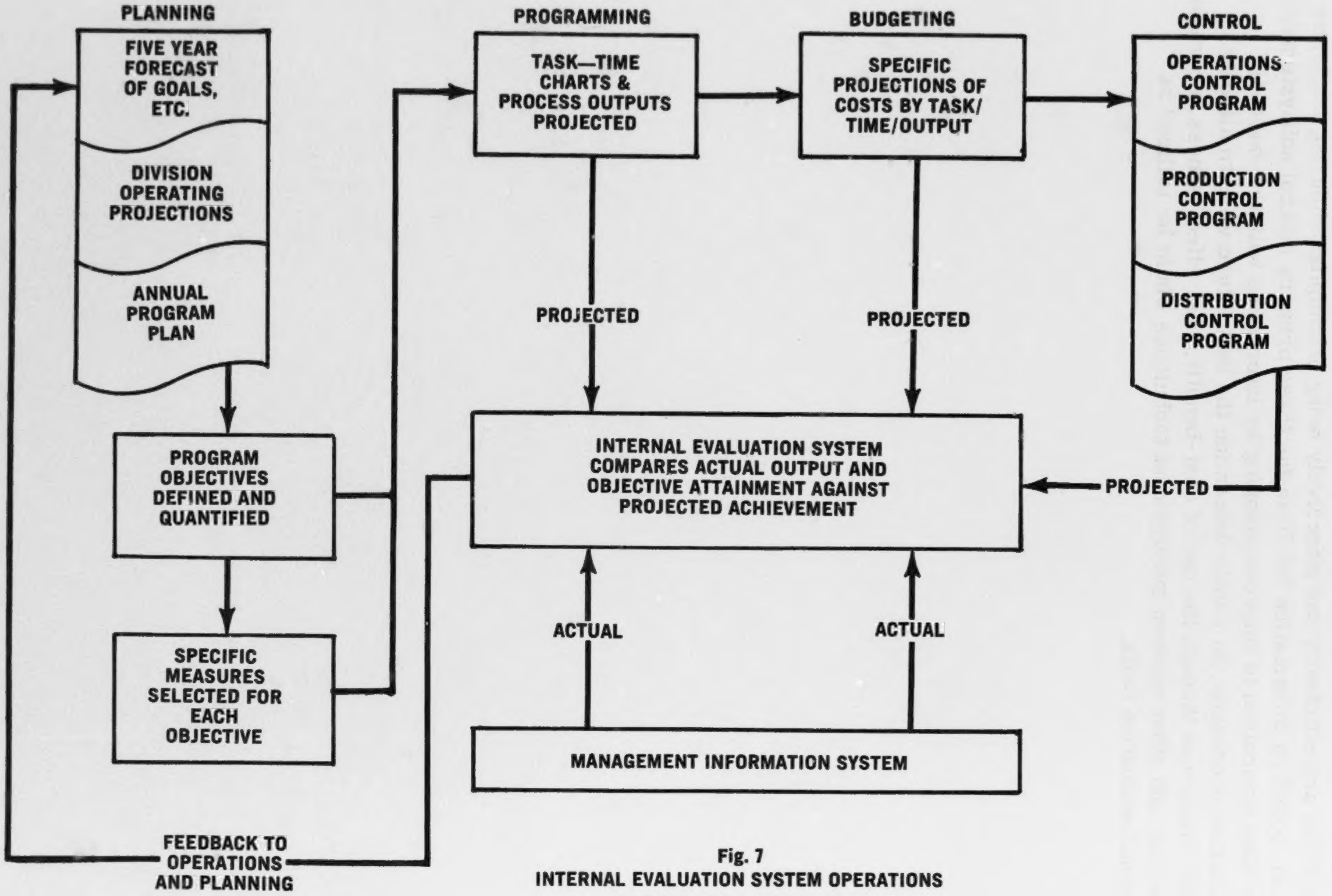
PLANNING
FIVE YEAR FORECAST OF GOALS, ETC.
DIVISION OPERATING PROJECTIONS
ANNUAL PROGRAM PLAN
PROGRAMMING
TASK—TIME CHARTS & PROCESS OUTPUTS PROJECTED
BUDGETING
SPECIFIC PROJECTIONS OF COSTS BY TASK/TIME/OUTPUT
CONTROL
OPERATIONS CONTROL PROGRAM
PRODUCTION CONTROL PROGRAM
DISTRIBUTION CONTROL PROGRAM
PROGRAM OBJECTIVES DEFINED AND QUANTIFIED
SPECIFIC MEASURES SELECTED FOR EACH OBJECTIVE
PROJECTED
PROJECTED
PROJECTED
INTERNAL EVALUATION SYSTEM COMPARES ACTUAL OUTPUT AND OBJECTIVE ATTAINMENT AGAINST PROJECTED ACHIEVEMENT
ACTUAL
ACTUAL
MANAGEMENT INFORMATION SYSTEM
FEEDBACK TO OPERATIONS AND PLANNING

Fig. 7
INTERNAL EVALUATION SYSTEM OPERATIONS
SUMMARY FLOW CHART

is used to improve operations by analyzing whether or not these goals and objectives are efficiently and effectively being accomplished during implementation, based on information fed from the three primary control subsystems. It is also structured to improve planning by interacting with the external evaluation processes, to jointly determine the best future ways to allocate PBEC resources through the use of cost-benefit, cost-effectiveness, operations research and other modern management techniques would be utilized as internal evaluation tools.

Summary

VI B. ORGANIZATION AND STAFFING

Phase I Organization and Staffing

The Office of Education provided a Phase I planning grant to the Corporation for Public Broadcasting to establish a Public Broadcasting Environment Center (PBEC), and to produce a plan of action to heighten environmental awareness and to provide environmental education through the use of the public broadcast media.

The organization that was utilized during this initial planning phase (June - November 1970) is presented in functional format in the included diagram (Figure 1) and a narrative description of key duties of each functional group follows.

The Office of Education (HEW), established requirements to be met during the planning period, and acted as educational advisors throughout the period. The Corporation for Public Broadcasting assisted PBEC in the development of administrative policies and served as an advisor on public broadcast media matters. The Advisory Council advised PBEC on broad concepts such as defining the overall role of PBEC, and how resources could be most effectively utilized. The Planning Advisory Committee consisted of professionals with expertise in environment, education, broadcasting, arts, communication and other disciplines. They provided assistance in determining operational objectives and developing specific program plans. Consultants were retained to assist in development of specific subject area materials such as internal and external evaluation systems, target audience surveys and environmental manpower training programs. The PBEC Planning Staff, under the direction of the PBEC Executive Director and Deputy Director produced specific action plans in the areas of environmental education, community environmental protection, and administration.

Brief biographical sketches of PBEC Planning Staff members and a list of consultants and contracts let is included in Appendix VI. B.

Phase II Organization and Staffing

Upon award of the Phase II grant, PBEC must move from a planning organization to an operations organization that has the capability to fulfill the overall PBEC goal and specific objectives set forth in the Phase I Final Report.

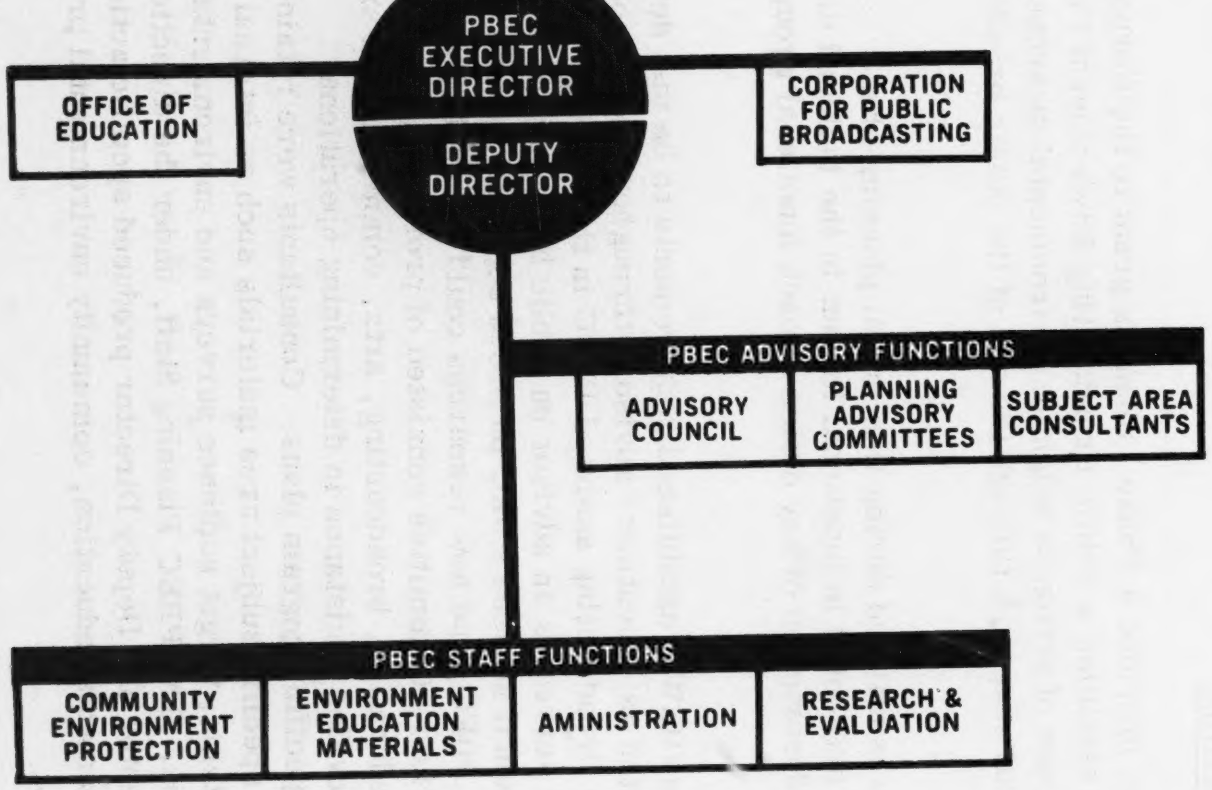
PBEC EXECUTIVE DIRECTOR
DEPUTY DIRECTOR
OFFICE OF EDUCATION
CORPORATION FOR PUBLIC BROADCASTING
PBEC ADVISORY FUNCTIONS
ADVISORY COUNCIL
PLANNING ADVISORY COMMITTEES
SUBJECT AREA CONSULTANTS
PBEC STAFF FUNCTIONS
COMMUNITY ENVIRONMENT PROTECTION
ENVIRONMENT EDUCATION MATERIALS
AMINISTRATION
RESEARCH & EVALUATION

Fig. 1
PBEC ORGANIZATION
PHASE I PLANNING
(June-November 1970)

In order to do so, the PBEC organization that is implemented in the early months of Phase II must have the capability of fulfilling the functions indicated on the enclosed Chart.[6] (Figure 2)

The U.S. Office of Education (HEW) and other major funding sources would specify what financial resources were available to PBEC for the coming year, based on operational requirements previously developed by PBEC. The PBEC Executive Director and Deputy Director would coordinate PBEC staff activities and those of outside consultants and contractors as necessary to meet program objectives, within policy guidelines from the affiliated Corporation for Public Broadcasting.

The Advisory Council would continue to provide high level support concerning future directions that PBEC should follow. The Planning Advisory Committees would continue to provide specific technical advice in their respective professional areas of expertise. Subject area Consultants would be retained to supplement and complement PBEC staff capabilities during system development periods, and for continuing operations, evaluation and PBEC System maintenance as necessary. PBEC Operations Staff would have the responsibility for maintaining operations and for planning in the functional areas of TV and Radio Productions, Environmental Education Materials Development, Community Environmental Protection, Environmental Manpower Training Program, Communications and Information Services, Evaluation and Research, Management Control and Information Systems and Administration.

To fulfill these functions, it is currently estimated that the PBEC staff will be built up from its current planning level (20) to a fully operational level (about 60) over a period of approximately nine months after receipt of the Phase II grant.

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[6] It should be stressed that these functional groupings do not define an "organization chart." The PBEC organization chart will be finalized in conjunction with staff selection during Phase II. One possible organization concept appears in Appendix VI A 1.

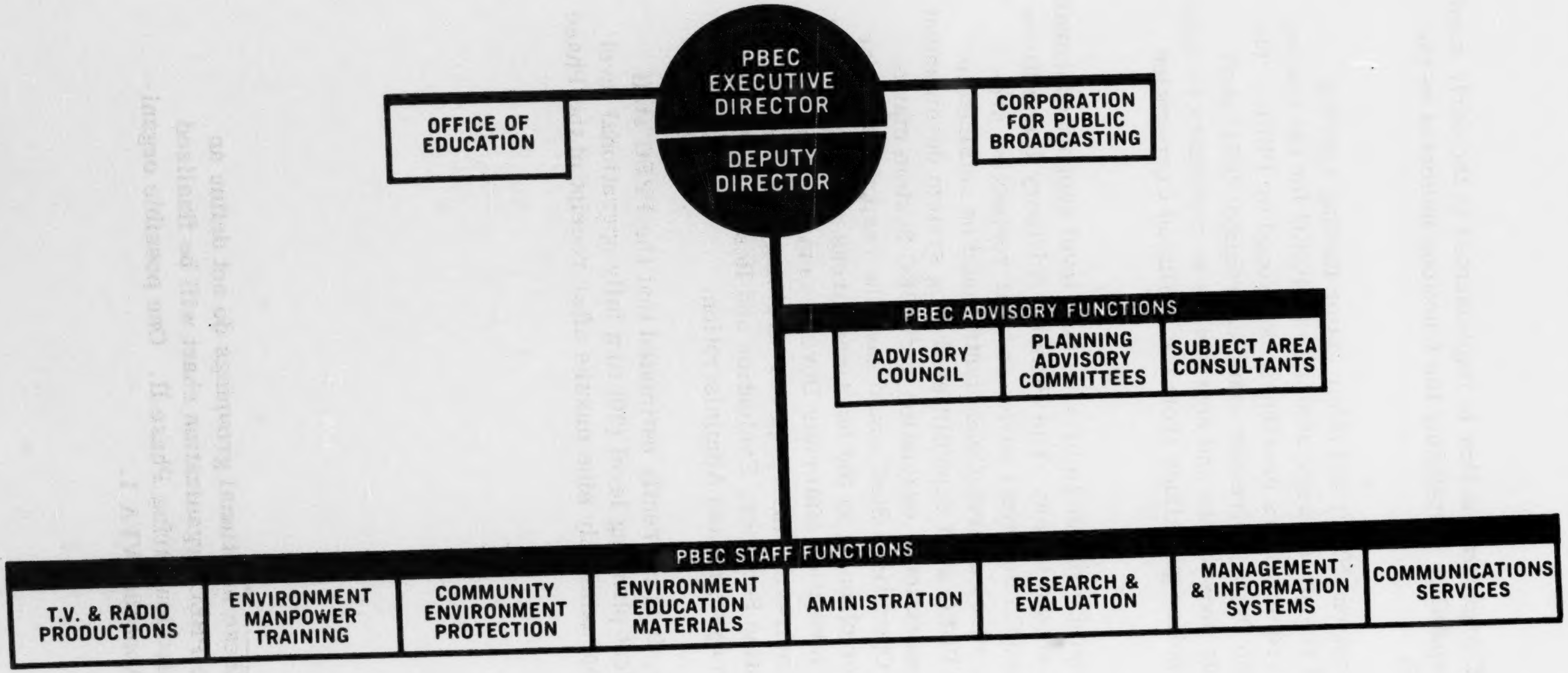
PBEC EXECUTIVE DIRECTOR
DEPUTY DIRECTOR
OFFICE OF EDUCATION
CORPORATION FOR PUBLIC BROADCASTING
PBEC ADVISORY FUNCTIONS
ADVISORY COUNCIL
PLANNING ADVISORY COMMITTEES
SUBJECT AREA CONSULTANTS
PBEC STAFF FUNCTIONS
T.V. & RADIO PRODUCTIONS
ENVIRONMENT MANPOWER TRAINING
COMMUNITY ENVIRONMENT PROTECTION
ENVIRONMENT EDUCATION MATERIALS
AMINISTRATION
RESEARCH & EVALUATION
MANAGEMENT & INFORMATION SYSTEMS
COMMUNICATIONS SERVICES

Fig. 2
PBEC ORGANIZATION
BY FUNCTIONS
PHASE II OPERATIONS
(1 January 1971)

This chart is a graphical representation of functions that must be exercised. It is not an "organization chart" showing divisional separations and lines of authority.

Summary

VI C. ADMINISTRATIVE POLICIES AND PROCEDURES*

In order to establish standard, logical operating methods and controls in the business management area PBEC has developed administrative policies and procedures for the present planning phase, and, in addition, has planned for a more complete and formalized program to govern its operations on a continuing basis.

Due to the relationship of PBEC to CPB, certain corporate policies of the parent firm were adopted for initial PBEC operation. Where appropriate, these policies were or will be revised to reflect the funding relationships of PBEC to the granting agency. It is anticipated that in the future, certain policies, such as those governing expenses and accounting, may be amended or rewritten to reflect relationships to additional funding agencies, foundations, or other public or private funding organizations.

Appendix VI.C. describes the results of Phase I planning and makes specific recommendations in the following four subject areas: personnel policies and procedures; compensation and position description, including a procedure for creating new positions and abolishing present ones; accounting and control procedures, and contracting and procurement guidelines.

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*This report meets a portion of the requirements of "Establishment of Public Broadcasting Environmental Center," of IV, Scope and Method of Approach, page 14 of the OE Grant.

Summary

VII - PRODUCTION OF PROGRAMS*

The "Quality of Life" Series

The development of a weekly television series on the environment was one of PBEC's primary concerns throughout Phase I. It was assumed from the beginning that such a series would be a principal contribution of the Center to environmental awareness, understanding and action.

Before deciding what it should do, PBEC spent much time and effort surveying what already was being done. Both commercial and public broadcasting were examined to determine the nature and dimensions of environmental programming—how many people had viewed past environmental broadcasts, who they were, the knowledge and dispositions of these viewers on environmental issues, how the broadcasts had affected their attitudes and actions and what further information they felt was needed or would be useful. Public broadcasting was investigated to determine the level and nature of its audience, how often its viewers are tuned in and when, what kinds of programs its viewers would most like to see developed and how they might respond to additional environmental programming (see Appendix I - Surveys). Target audiences were characterized (see Appendix IV). And numerous models were developed to illustrate the role of local public stations in stimulating environmental action at the community level (see Appendix XI).

Throughout this effort, the knowledge and skills of the PBEC staff were supplemented by outside specialists. Environmentalists, educators, curriculum developers, social psychologists, filmmakers, pollsters, commercial network executives, national and local public broadcasting personnel—these and others were consulted frequently (see Appendix III, Advisory Bodies, and consultant section of Appendix VI. B, Organization and Staffing).

On the basis of its initial work, PBEC reached a number of major conclusions. In summary form, these conclusions were: (1) that public concern over environmental problems has increased significantly; (2) that this increase in concern to a large extent has been stimulated by the commercial media; (3) that, nonetheless, the commercial media have been inconsistent and superficial in their coverage; (4) that, in order to make rational decisions about environmental issues, the public should have, and in many cases is requesting, further information on environmental problems; (5) that public broadcasting is an ideal medium for imparting this information; (6) that a regular series of programs on the environment, broadcast nationally, would constitute a needed focus in this area and would facilitate the promotion of environmental issues on a nationwide scale; and (7) that PBEC, by producing this series of programs, can serve as a valuable central force and coordinating agency in nationwide environmental programming.

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* This report satisfies in part the requirements of "C. Programs and Target Populations" of IV. Scope and Method of Approach, pages 10 and 11 of the OE Grant. It also responds to "H. . . . Production Sources Report," and "I. Production Goals and Schedules," page 24 of the OE Grant.

Having reached these conclusions, PBEC gave careful consideration to the nature and demands of a "Quality of Life" series. Much time, thought and planning was devoted to the underlying concept, the proper format, production needs and sources and the requisite budget. Out of this came the "Quality of Life" series as now proposed by PBEC.

This series will consist of weekly programs, each one hour in length. It will be broadcast in prime time by the Public Broadcasting Service. It will run 52 weeks a year and will consist of 39 weeks of original programs and 13 weeks of reruns and reconstructed earlier programs. The series will be aimed at both general and selected audiences and will be presented primarily in a magazine format.

Each program will be composed of program segments that will vary in length and subject matter. At least one segment each week will be designed to satisfy the needs of the PBEC Environmental Education Program for children, parents and teachers. A news segment, presenting a thorough run-down of the major developments of the week relevant to environmental issues, and a major report, dealing in-depth with a particular environmental problem, also will be included each week. The series in addition will utilize the arts, history and humor as valuable tools for imparting awareness and understanding of the environment and its problems.

The subject matter covered will be wide-ranging. It will include, for example, water and air pollution, recycling of solid wastes, pesticides, overpopulation, health, energy and land use. "Quality of Life" will deal not only with man's physical environment, but also with his cultural and societal environment. It will deal with value systems and life styles and human health in the broadest sense. The series will involve more than explaining what the problems are and how they might be resolved. It will indicate alternative courses of action, and their likely results. It will stress the immediacy of the problems, but it will avoid the "doomsday syndrome" and constantly point up what can be done—by individuals, by communities, by industry and by government.

To realize its goals, the series will do more than teach about environmental concepts; it will embody them. Rather than existing as an alien instructional force, "Quality of Life" will seek to become a part of each home and community into which it is broadcast. It will do this in a number of ways: by involving local public stations, by filming and discussing local problems, by utilizing audience feedback systems, by producing program segments aimed at utilizing audience feedback systems, by producing program segments aimed at minority audiences, by employing new techniques in the dissemination of important environmental information at local and regional levels.

Overall production of the series will be the responsibility of a special PBEC production staff composed of highly qualified professionals. This staff will maintain control over program content and quality and will insure that the series develops the necessary consistency of style and tone. Production of most individual program segments, however, will be done by independent production agencies. Research and Planning Grants will be awarded for the detailed development of program segment ideas, and separate Production Grants will be awarded for actual production. Public broadcasting personnel and facilities will be utilized in production to the maximum extent possible. The final task of assembling individual segments into the weekly program will be the responsibility of the PBEC production staff.

The Research and Planning Grants and the Production Grants will not be the same as the community action grants awarded to local public stations through the PBEC System (see "Strategies for Action" in body of Report, and see Appendix IX). The director of the PBEC Television Division, however, will maintain close liaison with those administering the community action grants so that materials resulting from them may, when desirable, be incorporated into the "Quality of Life" series.

The series will be backed up and promoted by the Communications Services Division of PBEC (see Appendix VIII). "Quality of Life" will be an integral part of the PBEC System; it will be closely tied to all PBEC facilities and will draw heavily upon the resources and work of these facilities.

Summary

VIII. COMMUNICATIONS*

The Public Broadcasting Environment Center was required to establish a plan for cooperation with commercial TV and radio and other media such as newspapers and periodicals in order to fulfill the overall mission of the Center, and to establish a two-way communication with audiences and communities served by public broadcasters. Such requirements are further reinforced by the Center's plans for effective Information Services (see Appendix II), External Evaluation and the need for feedback and dialogue it implies (see Appendix VI.A.2.) and Environmental Action (see Appendix XI, with a description of media cooperation particularly involving the Puget Sound Coalition).

An obvious first step was to set up communications between the Center and its user public broadcast stations, since the stations are the primary outlet for the Center's products and services PBEC's best listening post within any given community. It was then necessary to conceive a national plan and structure to increase public awareness of the Center itself and to reinforce through every ancillary means the education-broadcast efforts of the Center.

As a result of Phase I planning and the above conclusions, the Center recommends a Communications Services division with three principal functions: a research and information service for local stations and other logical users, such as other divisions within PBEC; a publications operation to disseminate papers and other documents produced during the course of gathering environmental data; a marketing service to promote broader use of PBEC-produced material. In addition, a Public Affairs division is proposed to provide public relations efforts and a continuing liaison for interchange of environmental information between PBEC and appropriate national and other organizations in the field.

During Phase I, PBEC learned that a real inhibition to local public broadcasters scheduling substantive environmental programs or community projects was lack of solid background. It became evident that, if PBEC had such facilities to serve local stations as a central reference agency, more environmental projects could be encouraged. In addition, the Center saw need for more regular interchange of information on environmental activities and developments between PBEC and the local stations. PBEC proposes at first to use existing lines of communications, such as the newsletter and memos of the Corporation for Public Broadcasting, for this activity; it may develop its own periodicals in the future.

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*This report responds in part to that aim of "C. Programs and Target Populations" found on p. 11, "To establish a dialogue within the home and throughout the community..." and in part to "H. Use of Other Media," on p. 13, both in IV. Scope and Method of Approach, of the OE Grant.

The Communications Services division also proposes to provide material for radio and television news programs on the environment. It was determined that there is a need for regular news dissemination in the field and an abundance of current material and sources on the broad range of subjects meant by "the environment."

It is anticipated that all of the activities of the Communications Services division will be supportive of the other PBEC functions, supplying them with information, informing them of local station needs and projects and keeping the stations and others informed of PBEC programs, projects and other activities.

Publications contemplated by the division include occasional monographs on pertinent environment subjects where updating and clarifying would serve the needs not only of producers of environmental programs but of others concerned with such subjects, including the very sources used by PBEC, such as conservation and other environment-oriented organizations.

When PBEC produces and discovers quality environmental programs, publications and other materials, it is anticipated that there will be a market beyond local public broadcasting stations, including international users, for this data. PBEC would, after careful market surveys, seek to serve such potential markets and at the same time generate revenue to support such activities.

The Public Affairs functions of PBEC would be staff activities conducted independently of the Communications Services division. They would include a strong public relations effort including a press/media office and advertising contracted through an outside agency. In addition, the Public Affairs division would endeavor to maintain close and useful relations with congressional and other government sources and with national, state and local organizations to provide them with information about PBEC interests and to elicit from them cooperation and information useful to PBEC. The Public Affairs division also would maintain the necessary schedules and contact with PBEC's advisory bodies (see Appendix III) in order to make them as effective as possible.

Summary

IX. MANPOWER*

Public Broadcasting Environment Center (PBEC) met its objective to examine manpower and training opportunities and needs in the field of environmental protection and control with a view to the kinds of contributions that it might be particularly qualified to make in these areas.

This examination reveals a serious lack of training opportunities in the field of environmental protection and imprecise information about those opportunities that do exist. It appears that government agencies, educational institutions and private concerns must increase efforts to improve employment conditions, to open training opportunities and to rectify current deficiencies in the quality of training before PBEC is in a position to make its most effective contribution as a media resource in this field.

It was against this background that the Center was required to see what it can hope to do, where it can contribute in the underdeveloped field of environmental manpower training.

Findings and Conclusions

Despite a dearth of hard information, available evidence uniformly attests to critical present and prospective needs for attracting manpower on three major job levels—professionals, technicians, and technician's aides—to the environment field.

Although broadcasting institutions cannot at present have a direct and immediate impact here, they may generate support among public leaders and their constituents to allocate the resources necessary to solve these problems.

As for direct broadcaster involvement in training, there is more room for this at the paraprofessional level than at the professional.

Environmental professionals, including engineers, scientists, sanitarians, and technologists, are best trained in advanced college programs in disciplines related to environmental technology. There appears to be little need for new instructional media to improve the quality of such training.

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*This report satisfies a portion of the requirements of "C. Programs and Target Populations" of IV. Scope and Method of Approach, page 10 of the OE Grant.

On the other hand, curricula changes to improve training are being undertaken on paraprofessional levels, and there is need for new instructional media and materials to implement these changes, particularly for the following reasons: (1) a shortage of qualified instructors; (2) the broad range of abilities among potential trainees, requiring individualizing of learning; and (3) intermittent attendance of trainees and inefficient use of materials. Also, two emerging developments of significance suggest the propriety of developing new instructional techniques for paraprofessional training in this field: (1) the movement toward broad disciplinary training, especially for technicians, in community colleges and (2) an increasing awareness of the need to recruit the disadvantaged to entry-level positions in this field.

To the extent that present paraprofessional training programs in environmental technology are failing to cope with these problems they largely reflect broader failures of the general art of manpower training. Vocational education and job training institutions, with Federal and state support, are best equipped to tackle these problems, but there is a unique contribution which modern instructional media can make to such an effort.

Recommendations

In view of the developmental state of the manpower and training art in general, and the environmental field in particular, PBEC recommends that it be funded to develop a capacity for examining the kinds of programs which it is most suited to undertake and for initiating program development through compacts with other institutions such as private manpower agencies, community colleges and other vocational and technical schools, employers, media production facilities, and Federal agencies, marshalling the required human and physical multi-disciplinary resources.

It is proposed that such capacity be developed through establishment within PBEC of a manpower office. The manpower director, subject to the Executive Director of PBEC, will have ultimate responsibility to: (1) examine manpower and training areas in which PBEC's unique media capabilities may have a special impact; (2) provide the financial means through PBEC's grant program to develop local environmental manpower training by assisting local manpower training with both planning and implementing grants coordinated through the local stations; (3) plan and coordinate programs connected with environmental manpower; (4) tap funds from Federal manpower programs and other sources to support programs; (5) sub-contract program components to selected agencies; (6) oversee satisfactory discharge of obligations by sub-contractors; and (7) provide linkages between different PBEC-sanctioned programs.

The following kinds of tasks would be examined and perhaps undertaken during Fiscal Year 1971; (1) production of television and radio programs to document and dramatize manpower and training opportunities and needs in environmental protection and control; (2) production of actual training materials for use in specific training materials for use in specific training programs geared to paraprofessional trainees; and (3) related functions, such as coordination of, and technical assistance to, programs designed to produce, utilize, test, and distribute media and materials related to manpower and training in the environmental field.

Should such programs be initiated, it is expected that operating funds would be solicited from Federal sources such as the Federal Water Quality Administration, the National Air Pollution Control Administration, and programs under the Manpower Development and Training Act and the Vocational Education Act of 1963.

Summary

X. ENVIRONMENTAL EDUCATION

In the first six months since the Public Broadcasting Environment Center was created a sense of urgency has prevailed. Developing networks of friends and associates in broadcasting, government, education and the environment have aided, through mutual commitment and activity, in the deepening discovery and understanding of the environmental education urgency and opportunity which exists. There is no time to bemoan the present state of the environment and threats of doom are enervating. Rather it is with constructive awareness and knowledge that action and involvement must be generated. Positive environmental alternatives will establish ever stronger the hope that the American heritage represents. A heritage in which "the lot of the common man will be made easier and his life enriched and ennobled."

In the first six months an educational plan has been developed on the belief and understanding that non-commercial public broadcasting offers an unprecedented means of reaching, teaching and involving the pluralistic millions of Americans. It is a plan of advancement towards our goal of environmental education for each concerned citizen and for every concerned child, which uses the most effective means of mass communication with its potential for deep involvement and broad education. The fitness of public broadcasting has been tested and proven. Now is the time of decision.

The PBEC education group has a plan, it has the will and it has the capacity to proceed with those plans. Now is the time to decide to help it get on with the job.

From an exploration of surveys and studies of existing environmental education efforts materials and related conferences and literature, one finds that existing programs tend to be of four types: (1) Design awareness, (2) Academic ecology, (3) Outdoor/conservation education, and (4) Environmental technician education. These approaches tend to be used alone and as a result, diminish the importance of the interaction of perceptual processes, socio-cultural systems, ecological facts, values and possibilities for now and for the future.

At present a unique opportunity exists, by using the power of public broadcasting, to make available to the general public and to education institutions in particular a comprehensive education program. Such a program could be a tool for educational institutions to influence the collective outlook of all people, with special emphasis on children, on their lifestyles, their surroundings, their responsibilities, their hopes and their possibilities as mankind, in and of environmental/ecological networks of mutual dependency. As the President's Council on Environmental Quality's First Anuual Report phrases it, "It is education that cannot wait."

Often we speak of man and nature as though they were separate. The program proposed is directed to human beings as a part of the process of change that we call nature. The total environmental educational program proposed here recognizes the interrelatedness of "the experience of nature and the nature of experience" we call LIFE WAYS.

LIFE WAYS is divided into four parts because of the nature of its content and the total PBEC program effort within which it will take place.

Television:

Ways To Go - national use (part of Quality of Life, a weekly hour-long program), 39 10-minute each color segments.

Ways It Is - local station use, 26 3-minute each color segments.

Radio:

Byways - local station use, 52 25-minutes each.

Materials:

Pathways - educational impact materials and kits for ages 6-7, 10-11, high school and teacher training.

Ways To Go is designed to increase understanding of environmental facts and values in particular, and environmental opportunities in general.

Ways It Is will focus on local or regional environmental problems with opportunities provided for two-way communication.

Byways explores environmental action issues and alternatives emphasizing the importance of now. Byways will use forms of dramatization such as debate, news, surveys, humor, dramas (stories), historic enactment and forums. Further, Byways will use experimental treatments, audio journeys and will develop audience participation.

In addition to the availability of television and radio broadcasts themselves, the segments will be available to educational institutions and others on film and tape. The programs will have highest education effect through the use of corresponding educational materials called Pathways. Pathways will be multi-media kits designed, developed and disseminated for that purpose. Pathways will extend the viewers' contact with the subjects of the radio and TV broadcasts and facilitate the involved development of activities and the recognition of environmental alternatives by both the students and their teachers. They will incorporate the latest educational strategies for accomplishing the highest level of student learning.

In the first year, materials with the highest educational impact will be developed for 6-7 year olds, 10-11 year olds, high school programs and for teacher training. These materials in turn will be field tested in one political region, one geographical region and three broadcasting regions. Release of these materials to all regions will follow. The development of similar materials for other specific age groups and for other occupational and discipline needs and opportunities is planned. The development of such materials is an extension of the environmental education goal to help develop both an understanding of the nature of change and the change of nature; the interrelatedness of subjects. Here individuals and groups can uncover both the reality of science and their perception of reality. The results of the choices that have been made become ever more obvious. Choices that now might be made will be developed with the viewer/learner as an active participant.

Teacher Participation

This program will help teachers in general to find opportunities in which they can discover:

> a legitimacy for themselves and for at least some of what they are already doing or want to do;
>
> encouragement to make their personal and professional activities even more useful and stimulating in terms of today's and tomorrow's attitudes and skill needs;
>
> suggestive ideas, materials and formats from which and with which they can establish, for themselves, directions to move and the means to do so;
>
> an environmental emphasis for enriching their current curricula.

Further, if teachers are to provide such learning/living opportunities for their students, and they are urgently needed, they must have them for themselves.

Parent involvement will be encouraged by a blend of school suggestions for student viewing at home and a simultaneous contact with parents providing suggestions for home dialogue and related parent-child activity.

Development

The films and other materials will be developed according to the following overview. It should be understood that evaluation and redesign are integral and continuing processes and that materials will be in different stages simultaneously.

1. Conceptualization, description and prototype.
2. Development test.
3. Development by contract with outside and proven development teams and concerns.
4. Pilot test.
5. Production and distribution by contract with commercial educational equipment concerns or publishers with proven production and distribution capabilities.
6. Field test.
7. Expanded production.

Dissemination

The major concerns of dissemination will be to inform broadcasting stations and schools as well as general and specific target audiences of the availability of programs and materials from PBEC and to disseminate the materials and programs themselves. It will also be necessary to provide information about programs in progress and results of PBEC's efforts. Methods being considered are magazine inserts, articles and references, conferences, workshops, mailings and position papers.

Contacts and negotiation with school systems and stations will be accomplished using personal visits and program material demonstrations as well as reinforcing the information they have received from other sources.

Once contracts are made, the PBEC staff will be available to conduct workshops, introduce materials or consult on their use. A newsletter and idea exchange service will help to introduce successful approaches with the shorter delay.

Workshops will be conducted to help participants acquire the skills and understanding necessary to help others benefit maximally from the program segments and the educational impact materials. The workshop participants will then be equipped to conduct workshops in their home and school areas.

Other PBEC Components

Dissemination will, of course, be aided by and coordinated with the Public Broadcasting Environment Center Communications Services. The Communications Services will also help provide the up-to-date information necessary to the creation of useful and stimulating program segments.

The evaluation tasks will be fulfilled with the help of the Public Broadcasting Environment Center Research Team.

However, the largest opportunity for mutual sharing within the Public Broadcasting Environment Center are joint efforts with the Community Action Group. Both the opportunities to create educational materials for the community and the mutual support of efforts not singularly under the aegis of either Community Action or educational institutions are most exciting.

Furthermore, the advantages to the educational effort of a central management system will remove much of the tedium which can repress a creation and development effort.

Evaluation

In an effort of the magnitude and scope of the one being proposed here, a wide variety of types of evaluation will be needed. These will include such evaluation types as subjective and objective, affective and cognitive, formative and terminal and rely on unobtrusive assessment using both direct and indirect measures.

The materials themselves will also contain optional evaluation devices which the user can feed back to the Center. Field evaluators will also be used and secondary sources such as parents can be surveyed for information about the effects of school materials.

The evaluation measures themselves will be determined in conjunction with the development of each specific education material package of segment.

Summary

XI - ENVIRONMENTAL ACTION:

Local Public Broadcasting Stations
and
Community Environmental Education and Action*

Public television's role in dealing with local problems is a growing and essential phenomenon in communities throughout the country. Through the use of televised town meetings, panel discussions, community study and research groups, telephone "speak-outs," and other participatory activities, an exciting and relevant form of communication and education is developing. As the growing "voice of the total community," public broadcasting is giving the means, often for the first time, for the "powerless"—the plumber, student, housewife, machinist, black activist, government employee—to communicate their desires, fears, problems and aspirations to the community-at-large.

Over the past six months of research and planning, PBEC has investigated this excitingly new potential of public broadcasting in local community environmental education and action programming. Numerous program models were evaluated and several, with PBEC advice and stimulation, were initiated. In-school environmental education, environmental manpower training, and general community action involvement in environmental matters were investigated on a national scale, and PBEC's role in supporting and expanding the effectiveness of such programs was studied and categorized.

PBEC considered a number of community-involved public broadcasting efforts, involving various target audiences, that could serve as models to any community interested in environmental programming. Among these investigated were Washington, D.C.; Binghamton, New York; Pueblo, Colorado; Pittsburgh, Pennsylvania; Hershey, Pennsylvania; Jacksonville, Florida; the Puget Sound region of Washington State; and the State Public broadcast systems of Iowa and North Carolina. Each model involved community people in all aspects of program development.

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* This report responds to the second of three "Purposes of Project" on page 2 of OE's Phase I Grant, "To develop plans for programs, some of which...would be tailored to specific target populations in the school system, for teacher training, community action or specific institutional purposes." It also partially satisfies "C. Programs and Target Populations" of IV. Scope and Method of Approach, page 11, "To establish a dialogue (which)...will result in local environmental improvement projects...and thereby create positive community action programs associated with environment problems."

For instance, in the Pittsburgh area, WQED's drug abuse program involved nine counties, thousands of participants in nightly town hall meetings, and an extensive in-school program; the Puget Sound Coalition Environmental Action Program involved both commercial and public broadcasting, seven regional colleges and universities, and 400 weekly discussion groups; in Washington, D.C., a black neighborhood Community Center and WETA-TV are developing an in-school environmental education project involving the participation of parents as well as students and teachers; in Pueblo, Colorado, KTSC-TV is coordinating efforts with the Hispano-American sector of that city to, among other things, develop manpower skill training for new environmentally related and communications job possibilities.

PBEC has come to understand that there is a wide variety of environmental priorities and needs, and that the varying interpretations of the meaning of "environment" determine what approaches are taken in treating the problems. In some instances, the physical environment is of primary concern; in others, particularly those involving disadvantaged minorities, the social aspects of the "quality of life" are most pressing. What is essential is that public broadcasters are aware of these differences in their constituencies and that they don't represent the environmental concerns of one segment to the exclusion of others.

Results of a national survey of over 3,000 people conducted for PBEC by Louis Harris & Associates, Inc., substantiated the fact that a majority of Americans are willing to become actively involved in dealing with certain local environmental problems. In response to questions concerning air and water pollution, 50 percent were "very willing" to write letters to government officials, 40 percent to join a citizen's group working to solve the problems, and 46 percent to accept some personal restriction on "what they can and cannot do." Of those interviewed, 48 percent felt that television could have a "major influence in bringing about effectual solutions to these problems."

Another strong statement of the need for PBEC to provide local station support is based upon the results of a national survey of local public broadcasting stations, television and radio, conducted by NAEB. One of the central themes of this effort was the universal view of public broadcasting as a nucleus for community awareness and action on environmental matters, especially as they pertain to local situations. This is further supported by a survey conducted by Environmental Resources which noted as the number one respondent desire "the need for more localized environmental education programming on TV, in the schools, and for the general public." There was almost unanimous desire to produce more in-depth and sophisticated documentation of environmental issues, but staff, operational and technical restrictions were cited as severely limiting such possibilities.

Conclusions. Overall, PBEC study and research has arrived at the following conclusions about the roles of public broadcasting and PBEC in local community environmental education and action:

1. Throughout the country, public broadcasting is becoming more and more community-need centered and increasingly involved in local public affairs and community education.
2. Public broadcasters, to a greater extent than ever before, are turning to the communities they serve for advice and participation in program planning and implementation.
3. There is, nationally, a great deal of local interest and activity in environmental education and action.
4. Public broadcasting, with its national outreach, has the potential to be in the vanguard of the environmental movement.
5. Public broadcasters have indicated strong interest in environmental programming, especially as it relates to local issues and is done in cooperation with local groups, but they are generally severely limited by lack of financial and technical resources.
6. Local stations will be unable to achieve their "environmental potential" unless they secure outside support, financial and professional.
7. Public Broadcasting Environment Center (and its related Education System elements) is uniquely qualified to provide that essential assistance.
    a. It can be a central source and coordinator of environmental program information and professional, technical and material support needed to produce in-school environmental instruction, community education and action, and possible manpower training programs, i.e., writers, producers, cinematographers, ecological information, written program support materials, film and video-taped program segments, consultants for all aspects of planning, production and evaluation;
    b. Within the fiscal limitations of PBEC and according to established funding criteria, it can provide financial assistance to local stations for the development of such programs;

c. PBEC can coordinate the monitoring and evaluation of public broadcasting environmental education and action programs so as to provide continuous feedback for the improvement of current programs as well as to assure that subsequent and alternative program models have the highest potential for successful adaptation and dissemination.

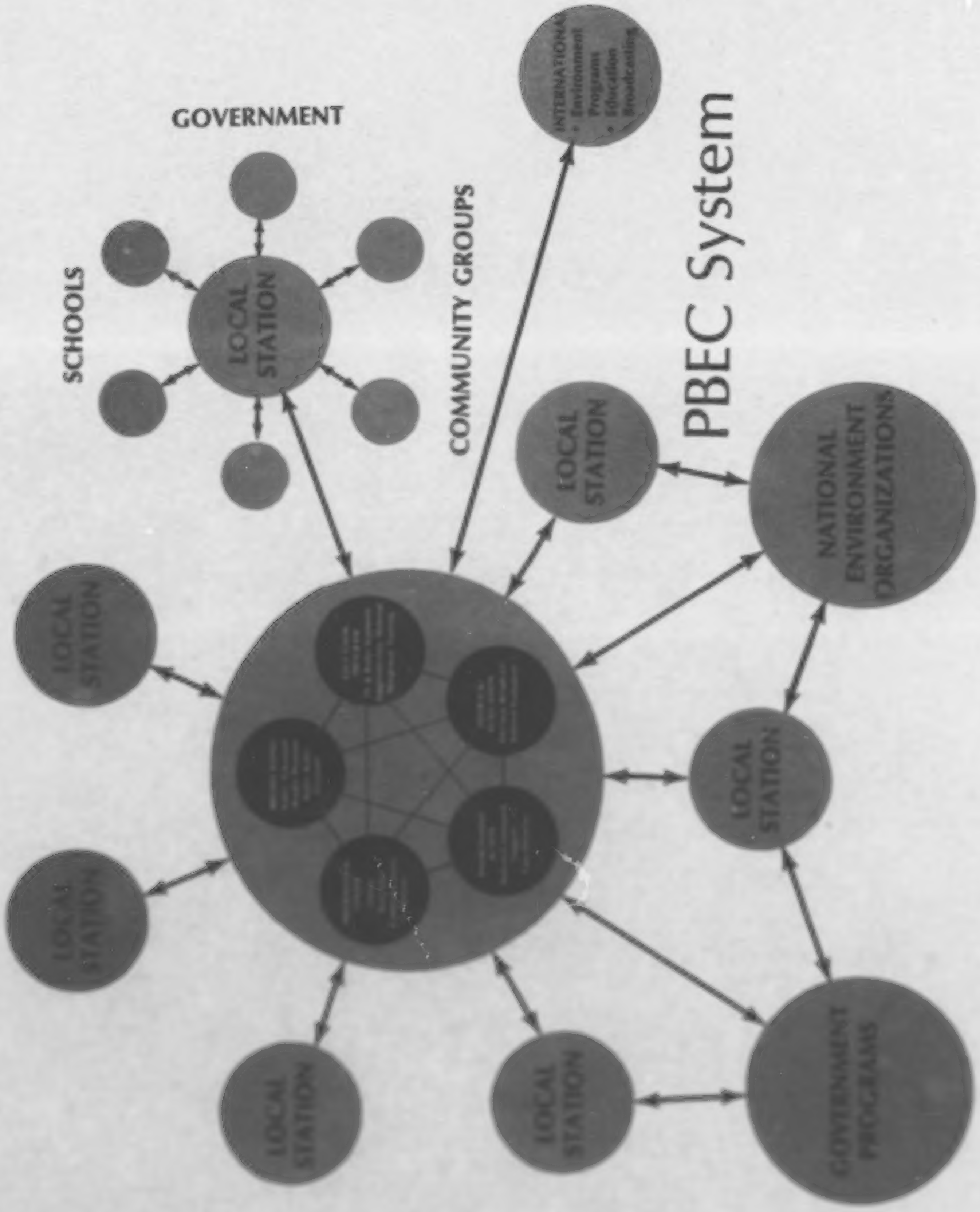
d. Since environmental problems are interrelated and international in scope, PBEC can link local, regional and national programs and efforts with the international aspects of the problems.

Recommendations. PBEC recommends that it support local environmental programming through the establishment of a national system (see "Strategies for Action" in the main body of this Report and Appendix XI), coordinating local station efforts with the national Quality of Life Program, which in turn will be partially composed of segments produced by local stations (see Appendix VII). The PBEC national education program, which will contribute to the Quality of Life series, will also relate to local stations both for ideas, and for development and testing of educational materials in local schools (see Appendix X). Local stations will, wherever possible, be tied together regionally, and international linkages will be sought. All efforts will be backed up informationally and technically by the PBEC Communications Service Division which (see Appendix VIII), in its operations, must be provided with news and developments from the local stations. Continuous evaluation of all efforts will be conducted both internally and externally at all levels and stages of operations (see Appendix VI, A 2 & 3). Thus, a Public Broadcasting System, dedicated to improving the quality of our total environment, and dependent upon the efforts of local school and community programs across the country, will come into being.

The importance of the growing movement to utilize the resources of public broadcasting in dealing with environmental problems cannot be over-emphasized. It goes far beyond simply cleaning up the physical environment and dealing further with problems of the social environment. For through this new role of public broadcasting, citizens are beginning to see that they can have an effect, that our system can become responsive to the needs of society, that it can, indeed, change. This is especially important in this day of cynicism and disillusion about the ability of established institutions to respond effectively to human needs. This kind of personal involvement in public matters helps to show that participatory democracy really is more than a utopian dream of our forefathers—that it is, in fact, a practical and effective concept that can be made to work.

APPENDIXES

		page
I.	Surveys	118
II.	Information Services	145
III.	Advisory Bodies	171
IV.	Target Audience Characterization	215
V.	Project Objectives	239
VI.	Administration	259
VII.	Production of Programs	417
VIII.	Communications	449
IX.	Manpower Training & Coordination	463
X.	Environmental Education	487
XI.	Environmental Action	627


PBEC System

GOVERNMENT
SCHOOLS
COMMUNITY GROUPS
LOCAL STATION
LOCAL STATION
LOCAL STATION
LOCAL STATION
LOCAL STATION
LOCAL STATION
LOCAL STATION
INTERNATIONAL
• Environment Programs
• Education
• Broadcasting
NATIONAL ENVIRONMENT ORGANIZATIONS
GOVERNMENT PROGRAMS

APPENDIX I

SURVEYS

Table of Contents

1.0 Purpose

2.0 Objectives

3.0 Method

    3.1 General

    3.2 Specific

4.0 Accomplishments

    4.1 Education Survey

        4.1.1 Introduction

        4.1.2 Primary and Secondary

        4.1.3 Science and Technology

        4.1.4 Arts/Architecture/Humanities

        4.1.5 Social Science

        4.1.6 Higher Education

    4.2 International Priorities and Policies

    4.3 Teacher Training

    4.4 Films

        4.4.1 Purpose

        4.4.2 Objectives

        4.4.3 Methods

        4.4.4 Accomplishments

    4.5 Public and Commercial Broadcast

        4.5.1 Purpose

        4.5.2 Objectives

        - 4.5.3 Methods
        - 4.5.4 Accomplishments
    - 4.6 Other Programs and Materials
        - 4.6.1 Purpose
        - 4.6.2 Objectives
        - 4.6.3 Methods
        - 4.6.4 Accomplishments
- 5.0 Conclusions and Recommendations

Bibliography

I. SURVEYS

1.0 Purpose. This report summarizes the PBEC's objectives, methods and accomplishments in prosecution of the survey effort. The report also recommends action for PBEC's operational Phase II.

2.0 Objectives. The objective of this task is to identify significant programs, program elements, materials, data and concepts in environmental matters relevant to PBEC's goals and objectives. Community, national and international arenas were sampled for environmental activities manifested in major cultural dynamics. Special emphasis was placed upon education in all its dimensions.

3.0 Method

3.1 General. PBEC's definition of "environment" includes not only the conventional biophysical aspects but encompasses man manifested as culture, art, architecture, science and technology, education, finance, industry, labor, government, law and the like. To survey all these universes for programs and program elements, data, materials, and concepts relevant to PBEC's larger objectives requires critical selectivity. Accordingly, the survey methods were deliberately constrained by the concept of "significance;" that is, each survey developed evaluative criteria designed to identify only those concepts, ideas and objects judged to be valuable in one or more parameters. Criteria varied but usually included aspects of: goal-orientation; synoptic character; innovative content; effectiveness (e.g., operationally real, cost-effective and accountable); and adaptability/transferability.

3.2 Specific. The "cognizant expert" approach was used. Professionals of recognized skill and experience in one or more of the survey categories were employed. Their personal contact with other individual experts, their awareness of repositories of knowledge, of institutions and the literature allowed a directed and yet comprehensive survey effort. The position papers produced by the cognizant experts identified significant programs and program elements (curricula, books/workbooks, audio-visual materials, kits, graphics, displays, plans, both real and conceptual, models, etc.). These experts also identified repositories of information (as people; as compendia and reports prepared by others research; as libraries and files, etc.). The substance of their reports are summarized in the sections following.

4.0 Accomplishments

4.1 Education Survey

4.1.1 Introduction. Environmental Education has now become a major national concern. New legislation has spurred interest, and many are hoping to use the environment as a vehicle for needed educational reform.

Definitions of the field vary, but all agree that good environmental education involves considering the total complex of the involvement of man with man and man with nature and technology. The aim is a greater harmony of man with his world, seen as a whole -- a "spaceship."

Many believe that only a "self-actualized" child will be able to make the decisions necessary to save our world. Therefore there is much pressure toward "open education" in which the child discovers things with the teacher, who helps to set goals and give background for appropriate choices of alternatives for action.

A usual concomitant of this style is "field work," that is: direct involvement with the world around you, be it considering spatial relationships in the classroom, the ecology of the schoolyard or the improvement of the neighborhood and larger community nearby.

This kind of direct dealing with actual problems requires interdisciplinary approaches.

There are not many programs which encompass all these ideals, and many programs labeled environmental are in fact pedestrian. But there are interesting trends and examples arising from different sources (1,5).*

One major new trend concerns schools that are oriented around their neighborhood -- that use the city for learning. At the high school level, Parkway in Philadelphia and Metro in Chicago are examples. The BEEP project at Boise Elementary School in Portland, Oregon is another. These projects have programs in the city, taught at various civic institutions, and a coordinating discussion program in the school (5,8).

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* See Bibliography, attached, for references cited.

This total restructuring of the school around its environment and around environmental concerns is also an intriguing trend, at college level, exemplified by the College of the Atlantic, Hampshire College, the University of Wisconsin at Green Bay, and a few others. The "University without Walls," while not quite so overtly labeled environmental in its basic approach, is in fact very much oriented in this direction (4).

Higher education also exhibits a strong trend toward interdisciplinary centers, a form of organization which is not seen at school level.

At school one observes programs which try to "infuse" the curriculum is all aspects and thus arrive at an interdisciplinary approach despite school organization. For instance, the National Park Service, National Environmental Education Development (NEED) program, with an integrative focus in field experience, has concepts and materials which can be used in all subject areas to deepen the direct environmental awareness gained from outside trips.

The environmental motivation in restructuring schools or infusing the total curriculum represents the desire for interdisciplinary direct contact with the environment.

But in other programs the driving force has come from some special disciplinary approach which then fans out into other areas. Among interesting projects of this nature are some started by architects and planners with the aim of teaching how to plan a city, taking into account technological, natural and human needs in a total matrix (2,5,7). Buckminster Fuller's "World Game" and "GEE" in Philadelphia and others are stimulating (7).

We live in a changing world, a world where we must try to have the future not only less polluted, but more humane and beautiful than the past. Education is not perfect -- it reflects fallible mortals too well -- but some of our best hopes seem to be gradually coming into being through environmental education. It is the creative signs of openness, disciplined self-direction, and ability to deal directly, knowledgeably and wholly with our world that we hope to nurture through our own programs and materials which will utilize and publicize the best ideas from some of the existing projects referenced in the paragraphs below.

4.1.2 Primary and Secondary. This summarizes PBEC's education survey of significant environmentally relevant programs for children, primary and secondary. The exhaustive and as yet unpublished report from the Office of Education (some 1,300 pages) by George Lowe and others, provides the basic set in this field (12). To augment this, PBEC conducted a survey of the various organizations and institutions that have been involved in what is entitled "environmental education." Charles Roth of the Massachusetts Audubon Society, who has served as a consultant to the Task Force on Environmental Education, O.E., assisted by Richard Cohen, prepared a report identifying the organizations and individual experts in the environment field and their educational programs (5). In addition to those labeled "environment" some of the community groups such as Girl Scouts and others have been contacted, and also some of the professional associations.

4.1.3 Science and Technology. Environmental education in science and technology has been touched on in some of the primary and secondary work above. A PBEC staff paper describing some of the chief programs in the field was prepared (3). This discusses the BSCS and some of the other organizations that have been most deeply involved in science/environmental education. Most of the materials referenced therein are in-house at PBEC and the location of others is known.

A PBEC representative has visited the ERIC Center at Ohio State University, which covers many thousands of science programs. ERIC has many of them already categorized and evaluated for environmental significance. Several hundred still need to be analyzed. These programs are interdisciplinary, but since the OSU/ERIC Center emphasizes science and mathematics it is not surprising that the content emphasis will be somewhat biased. Excellent understanding of individual state programs was also gained from this visit. The ERIC findings are summarized in (1).

4.1.4 Arts-Architecture-Humanities. A staff paper describes significant environmentally-related work in the arts field and, in addition, Mrs. Gloria Weissberg, an interior designer and teacher, prepared a consultant paper on arts and architectural design (7). Mrs. Weissberg talked with the important professional associations in the field to determine their activities. Her paper is a general survey of their activities and has identified particular programs (AIP, AIA, AAM) that are of interest to us. The paper also surveys the films that relate to these programs.

Peter Robinson, another consultant who is both an artist and an educator, has talked to the National Endowment for the Arts and certain other groups in the area of the arts. His survey describes significant programs through these sources (9).

The arts are represented through aesthetics of the environment but also through a growing concern for sensitizing people to their own and others feelings in relation to the world about them. And of course it is through the arts and humanities that man often best expresses his future dreams. These concepts are amplified upon in the staff and consultant papers sketched above.

4.1.5 Social Science. A staff paper on environmental education (8) has been prepared, presenting a rationale for social science environment programs. The paper provides a listing of around 30 significant courses that are relative to this field, indicating their general substance and where they can be found. Most of the materials referenced herein are already on hand in PBEC's Information System.

4.1.6 Higher Education. A staff paper (4) describes the important new work in this field. There are in the PBEC Information System a number of individual programs in colleges and universities relating to the environment. We also have in our files a number of reports which summarize activity and/or policy in the higher education area. We note here four. "The Universities and Environmental Quality: Commitment to Problem-Focused Education" (10). This is a well-regarded statement of the need for interdisciplinary programs emphasizing graduate level but is also pertinent to undergraduate education.

Another valuable conference report, "Undergraduate Education in Environmental Studies," was published by the Public Affairs Center, Hanover, New Hampshire, in the Spring of 1970. This conference actually took place in November of 1969. It includes some excellent working papers, both on giving case studies for environmental projects and giving some of the past history and rationale for them.

A third important report on "Urban Universities: Rhetoric, Reality and Conflict," done for the Office of Education by the Organization for Social and Technical Innovation (OSTI), was published by the Superintendent of Documents in 1970. While this report is labeled "Urban Universities," in fact, much of the discussion is relevant to problems of universities and the environment.

The fourth is also well-known: "Environmental Science Centers and Institutions of Higher Education: A Survey" (11). The Library of Congress sent out questionnaires to some 1,300 institutions, got replies from 500, and did a qualitative analysis of about 121 centers. It should be noted that there was some science component in all these centers.

Other higher education reports of value include the American Institute of Architect's (AIA) Report on Education identifying programs on the urban and architectural programs.

The AAAS meetings December, 1969, notably those those chaired by Professor Dean Everett of Hampshire College, reflect a great deal of university student thinking about environmental studies. In addition, one of the PBEC staff members worked with a student group on environmental studies programs last year.

4.2 International Environmental Priorities and Policies. A PBEC staff paper (13) summarizes international environmental education. Another staff paper reviews priorities in the international field (14). Both staff papers were prepared by professionals with extensive international background.

Ruben S. Brown, assistant to Dr. Carroll L. Wilson at Sloan School of Management at M.I.T., has prepared a consultant report for us on some of the environmental priorities, educational activities and resource people in the international field (6).

Dr. Thomas W. Wilson, Jr., a consultant to the Anderson Foundation, has supplied a report on national priorities and is reporting specifically on some current international conferences. He indicates the issues that are considered important and some of the ways in which film and TV might be of use in communicating these issues (15).

John Milton, Deputy Director, International Programs Division, The Conservation Foundation, has served as a consultant for PBEC and has provided reports on activities in the international area. In particular, we have case study material from the Conference on the Ecological Aspects of International Development, with which he was deeply involved.

We also have materials on the U.N. '72 conference in our files.

The data from the International Union for the Conservation of Nature and Natural Resources (IUCN), an organization of private and governmental groups with non-governmental status at the U.N., (particularly close to the Food and Agriculture Organization (FAO), The United Nations Development Program (UNDP) and UNESCO,) is readily available to PBEC since several staff members and consultants have close connections with ICUN.

Environmental policy nationally and internationally has been touched upon by staff papers (6, 13, 14). The most definitive statements now available are a Federal and a university report (16, 17). The latter's recommendations in fact infer the establishment of certain national postures relative to national and international environmental concerns.

4.3 Teacher Training: In the area of teacher training a member of the staff, Madison E. Judson, has had extensive training in the area of teacher training and has been a reader of proposals for EPDA, U.S. Office of Education. He has in his files and at his command a wide range of activities in the teacher training field, giving PBEC control of the state-of-the-art.

PBEC also has as a consultant James L. Aldrich, formerly Vice-President, Education Development Center, Newton, Massachusetts, and now in charge of education for the Conservation Foundation, who has similarly been involved, both in the United States and overseas with both U.S. and overseas teacher training programs and has extensive knowledge of work in this field.

It should be noted that many of the educational projects surveyed in reports above are in fact teacher-training programs as well as curriculum development projects.

4.4 Films

4.4.1 Purpose. This report describes a survey of significant, environmentally pertinent films, 8 and 16mm films as well as television material which has been transferred to 16mm film for general distribution. The report provides the substance of one of the four reports required by the PBEC grant. The evaluation of environmental films supplements the resources of the PBEC Program Development Group and is prerequisite to establishing a film information service.

4.4.2. Objectives. The objective was to survey 8 and 16mm films which dealt with the environment in order to obtain the following information:

a. Establish the subject parameters of the available films.

b. Specify outstanding films in each subject area according to predefined objective and subjective criteria, including reflection of target audience characterization.

c. Establish ability to obtain quickly films PBEC does not own.

4.4.3 Methods. To obtain the above information, films were surveyed by source as follows: major distributors; Federal and state governments; industry and labor unions; environment and interest groups; commercial and public television; film festivals; film repositories (such as museums, libraries, or university audio-visual centers); and international organizations and foreign countries. We recognize the high probability of duplication with A/V program elements in the other areas of the survey task; accordingly, careful cross-correlation is exercised.

4.4.4 Accomplishments

a. A survey of 450 environmental films has been completed and the data has been collated and analyzed (19). Expert sources (The American Film Institute, filmmakers, private consultants) have been utilized to assure maximum survey coverage coupled with rigorous selection for quality. Most of the films surveyed do not adequately reflect the environmental crisis, the scope is limited, cognitive load is light or inappropriate, affective tone tends to be didactic, and use of film as a medium is frequently uninspired. However, some of the films tailored for a specific target audience very effectively accomplish specific objectives. Don Widner's film "Slow Guillotine," produced for KNBC-TV in Los Angeles, presents urban air pollution problems in terms of enforcement of the California law limiting auto exhaust emissions. In addition, some of the sensitizing films on urban ecology produced by Ealing primarily for in-school use are excellent.

b. Over 100 pertinent source lists and catalogs of all major distributors and producers of environmental films and bibliographies developed by other valid surveys are being placed in an information system which will permit retrieval of information on approximately 800 films by source, title, and subject. The information obtained has been organized in a system which can respond to internal and external requests for particularly outstanding films on aspects of the environmental crisis. The film information component can also provide data on how to obtain a given film quickly. Information is accessible by subject, by film title, and by source.

4.5 Public and Commercial Broadcasting

4.5.1 Purpose. The purpose of this report is to describe environmental programming by television and radio stations in the United States and abroad. The report supports PBEC's program development effort by providing a quality base line comprised of the best and most ambitious programs on the environment to date, as well as indicating strengths and weaknesses of current programming and outlining program resources which are being utilized. In addition, the report will aid in the creation of a tape and film library by providing programming information useful in itself, and useful as a locator of significant videotapes and television films.

4.5.2. Objectives

4.5.2.1. The primary objective during Phase I has been to survey commercial and public broadcasting for data on environmental programming broadcast during the last twelve months and for data on programs planned for future broadcasts. The data includes:

a. Program description. Subject matter, program objectives, program type, length, color or black/white, station or network affiliation.

b. Program evaluation. Audience impact, reviewers' response, indication of technical and aesthetic levels when possible.

c. Program plans for future. Available ideas, scripts, etc.

d. Program resources utilized by public television. Identification of significant resources, such as community organizations, government information, industrial handouts, etc., used to develop and support program concepts.

4.5.2.2. The secondary objective during Phase I is to establish a mechanism(s) which will provide PBEC with a continuing flow of environmental programming information from public broadcasting stations.

4.5.3. Approach. To obtain the information described above, surveys were to be done of environmental programming broadcast within the last twelve months and programming planned for the future by commercial television and radio networks and stations and national program sources, and international television and radio programming, i.e., programming done in foreign countries.

PBEC was assisted in this effort by the National Association of Educational Broadcasters and the National Association of Broadcasters (20, 21). Relationships were established with organizations which have compiled information on public broadcasting pertinent to the PBEC-sponsored environmental programming survey, and understandings regarding mutual support and information exchange were to be established. (See 4.5.4.2)

4.5.4. Accomplishments.

4.5.4.1. Surveys of television and radio programming on the environment have been completed and the collation and analysis of data elicited by the surveys is complete.

4.5.4.1.1. Public television and radio stations (20). The survey of television stations and 42 radio stations was accomplished by the completion of the following tasks:

a. Collection of information preliminary to survey and design of a survey instrument.

b. Initial contact with the television and radio stations by TWX or telegram.

c. Survey by telephone using the questionnaire designed.

d. Collation of data elicited by survey.

4.5.4.1.2. Regional and national program sources for public television and radio. Survey was completed by telephone contact with the National Educational Network and the Public Broadcasting Service, utilizing the basic questionnaire developed for the station survey (22). Regional network programming is produced by local stations and, therefore, is included in the local programming survey.

4.5.4.1.3. Commercial television and radio stations. Letter and survey questions have been drafted. 550 television and 2,150 radio stations have received survey questionnaires (21). Responses have been collated in tabular form.

4.5.4.1.4. Commercial television and radio networks. Contact has been established with the major sources of national television and radio programming and with the Television Information Office, information arm of the commercial broadcasting trade association, the National Association of Broadcasters. Survey of these sources has been completed and the data elicited have been collated (21).

4.5.4.1.5. International television and radio. Survey of available information sources on environmental programming broadcast by international television and radio stations is complete (23). Information obtained by the survey has been supplemented by PBEC obtained data. The data have been collated.

4.5.4.2. Relationships have been established with NAEB and CPB, organizations that regularly gather various types of information on public television and radio programming. NAEB has proposed a method by which the NAEB could serve as an information clearinghouse for PBEC on environmental programming information at the station level during the next twelve months. PBEC and CPB have established mechanisms for sharing programming information. Information is also available from the PBS affiliate pool of data on nationally distributed programs broadcast by local stations. Contact has been made with Dr. Richard Heffner, a communications professor at Rutgers University, who is beginning a detailed analysis of both overt and covert environmental messages transmitted by public and commercial television. His analysis of covert messages will include attitudes toward the environment suggested by nonenvironmental programming such as "Hee Haw" or "Julia."

4.6 Other Programs and Materials

4.6.1. Purpose. This section reports a survey of certain activities related to the environment being carried out by selected organizations. This report summarizes the substance and methodology of the study, discusses in detail the programs and materials of the organizations reviewed, and provides conclusions and recommendations for future investigation of programs and materials. This effort was conducted with the (contracted) aid of International Research and Technology, Inc. For details of the purpose, objective, method and accomplishment, see their report (18) and the supporting materials.

4.6.2. Objectives. The primary objective of this effort was to survey and critically review those significant programs and prepared materials of organizations not formally associated with either the broad environmental efforts of traditional conservationist public information programs or conventional broadcast or educational programming. These "other" organizations included private corporations, both profit and nonprofit; trade and industrial associations; professional and occupational associations, and labor unions. Some university based programs and some government programs were also included. The programs which were reviewed involved research, development and engineering efforts; community oriented educational programs; organizational staff training programs; public relations and advertising materials, and community action programs. The materials were principally reports, films, and brochures.

The secondary objective was to recommend a program for continuing identification and technical assessment of activities being undertaken and materials being prepared by such organizations as those reviewed in this report, which will be relevant to PBEC's operations.

4.6.3. Methods. The first task of the project was to prepare classification schemes which would provide the framework for, first, an objective analysis of the content and form of various environmental programs; second, the categorization of the many organizations involved in environmental programs; and third, the development of a check list of activities and materials to identify or acquire.

The first classification scheme prepared was a morphological outline identifying, in a systematic fashion, all possible program characteristics. These characteristics include: program type, status and purpose; geographical scale; type of human activity to which program is relevant; effects upon environment; affected regions; pollutants removed, and program emphasis. Information on each program identified was recorded and evaluated within this classification scheme.

The second classification scheme prepared was a detailed analysis of organizations involved in environmental issues. The first category, Private, For-Profit Organizations, was initially designed around the Standard Industrial Classification codes. The remaining categories provided classification for all other organizations.

Working from this initial classification, we then developed a less detailed, somewhat more aggregated categorization scheme for listing organizations. The major categories were: Industry and Commerce, broken down to petroleum, petrochemical, chemical, detergent, paper and container, heavy industry, banking and financial, food processing, railroads, and mining; Trade and Industrial Associations; Professional and Occupational Associations; Labor Unions, Private, Non-Profit Organizations; Universities; Government; and Miscellaneous Organizations.

We first identified and classified those organizations that we knew were involved in environmental affairs, such as the National Industrial Pollution Control Council. Each of these groups provided the names of, and where necessary, introductions to, other groups active in environmental affairs.

Other organizations were identified through a literature review of trade and scientific journals; news items, feature stories and advertisements in newspapers and magazines; and directories such as the "1970 Conservation Directory."

Over 500 organizations were identified, and over 300 telephone calls made. Materials from over 150 organizations were obtained and evaluated. Approximately 80 organizations were visited, and key executives interviewed.

The information received from these interviews and the materials obtained were subjected to four criteria which were developed for selecting "significant" programs: (1) Organizational commitment -- Is there, in effect, a corporate goal which deals with improving the environment?; (2) Innovation -- Are programs innovative, or are they merely continuations of efforts which have caused today's degraded environment?; (3) Willingness to operate in context with other programs and organizations -- Are organizations willing to take a synoptic view?; and (4) Effectiveness -- Are the efforts truly goal-oriented, or merely a way to disguise the problem?

As programs and materials were identified, they were checked against these criteria, and an evaluation prepared. Future use of these criteria, as modified by PBEC, would assist in a systematic evaluation of information on programs pertaining to the environment.

4.6.4. Accomplishments. General observations. A variety of programs and materials exist or are being prepared which are directed towards meeting an organization's perceived responsibility to environmental affairs. The most appropriate general comment to make concerning the significance or effectiveness of environmental programs is that each program must be evaluated separately to first, determine the validity of its claims and second, identify its place in the organization's policy and management processes.

Industry and Commerce. The programs of industry and commerce are profit-oriented, pertaining to company image, market penetration, and production costs. Most of the research, development and engineering efforts are oriented to meeting government-established standards. Even in the several cases identified of corporations taking aggressive leadership in the setting of rigid and enforced standards, there is always a related concern with the way government agencies will set future standards, monitor the environment, and enforce regulations. In profitable industries, there appears to be the least trouble in building new pollution-free facilities as the newest technology can be incorporated into their design. Reducing pollution of older facilities is a more serious problem, and one that was not discussed with us unless it was to refer to the successful installation of pollution abatement equipment.

There is widespread concern with the setting and enforcement of environmental standards by government agencies. It is generally understood and expected that standards will be set and enforced. Most corporations are apprehensive that standards will be ambiguous, and will make it difficult to design new plants and correct old ones. They are concerned that effluents and environmental characteristics will not be monitored consistently or correctly, resulting in confusion and disagreement over the level of environmental degradation; and that regulations and penalties will not be administered equitably, giving both national and international competition an advantage.

A number of firms are beginning to examine the degrading effects of various products upon the environment and are either defensive of their own product, developing a new product, or offering replacements for another industry's product.

Key components of corporate environmental programs are educational and community relations efforts. These include advertising campaigns, taking an active role in community issues, developing new staff and manager training efforts, lobbying in response to legislative programs, undertaking environmental reclamation projects, and public relations.

The materials associated with these programs vary, including advertisement, brochures, booklets, course outlines for new training programs, formal testimony, films, speeches, new systems, and research studies. A large portion of these materials is not prepared for the public, but for corporate or industrial representatives. Only recently has industry and commerce made efforts to develop programs identifying, on a broad scale, their environmentally-related activities.

Trade and Industrial Associations. Trade and industrial associations generally represent the lowest common denominators of the values and interests of their members. Individual members are often more willing to address realistically the issues of pollution and environmental degradation, and to develop positive responses, than the associations which represent them. Trade associations are, for the most part, taking the defensive and shielding their members from inquiry, even where members have acknowledged their responsibility for certain problems.

Professional and occupational organizations have been able to quickly relate their professional and occupational interests to environmental affairs. To some degree, these are self-serving efforts, particularly in trying to convey the message that a professional or occupational group's skills are essential, and perhaps the best in resolving pollution problems. Most of the programs are oriented towards public or member education.

Labor Unions. Labor unions are beginning to use environmental issues as part of their bargaining position, dealing with both plant hazards and the environment of the community or region. Union leaders are making efforts to involve themselves in the setting of national policy regarding environmental affairs. A valuable aspect of union activity is acquainting the skilled and unskilled member with environmental affairs.

Non-Profit Organizations. The specialized non-profit organizations we investigated represent, generally, a well-defined range of interests which are not threatening to or competitive with others. The programs of non-profits include research, education, and community action.

Universities. The special university programs we investigated have a strong local orientation and are principally adult education and community action oriented. The programs represented are quite innovative and appear to be accomplishing results thought by many to be impossible.

Government. Special governmental programs are wide-ranging, and include research, demonstration, and education. Some interesting programs are underway within agencies not normally associated with pollution abatement.

Of the several hundred organizations reviewed, industry and commerce are the most difficult to assess. This is due both to the inherent complexity of market forces in the private sector and the sheer number of entities involved.

Our review of the various programs of each organization has revealed a number of very significant programs which we believe have public broadcast potential, can be used as models for public broadcast, or can be used by public broadcasters as another means to reach specific groups.

General Discussion. All organizations contacted claim to have made some "commitment" to environmental affairs. Based upon our understanding of current practices we have no reason to believe that any group would disavow a commitment to environmental affairs. These commitments, as seen in present or planned programs, can be, as suggested in the report, placed in one of the following six categories: (1) objective and effective, with a synoptic approach; (2) conservative, but willing to operate within enforced government regulations; (3) attempts to divert or absorb groups actively involved in environmental affairs; (4) publications of less important environmental issues to distract attention from environmentally harmful activities; (5) failures to recognize or understand environmental issues; and (6) actions to avoid environmental issues or make misleading statements about them.

We conclude, however, that there is a great deal of information concerning or promulgated by these and similar organizations that has a high public broadcast potential. The use of this information in public broadcasting can conveniently be classified into the following categories:

a. Broadcasting material already prepared: films, recordings, or television tapes, either because they provide basic information on a pollution problem or because they show examples of effective action. The former exist among both the materials prepared by private corporations and government agencies. In the latter category, the most provocative materials are probably those showing the instances in which private groups or individuals have taken actions that have already resulted in changes for the better.

b. Filming or recording current pollution abatement efforts. This would require identifying examples such as an industrial plant which has installed a successful waste recovery and disposal system, a city with an effective rodent control program, or a power plant which controls all effluents; obtaining permission to produce such a film or tape; and producing the program.

c. A closely related category would be filming or recording the replacement of operatiors which formerly degraded the environment with new, different, processes that do not. Recycling water systems, or high performance municipal waste incinerator-power plants would be examples.

d. Showing the activities and problems of people in government agencies, corporations, groups or as individuals, associated with promoting constructive change. This might range from corporate staff and plant manager training programs to community-action programs and lobbying efforts, to show how environmental affairs both as economic and political issues are now affecting the development of laws and commerce. This category should also include the problems of paying the cost of improvement, the reasons why these costs make some pollution abatement decisions difficult, and why some of these are misunderstood.

e. Predicting the future consequences of trends which affect the environment. These trends include: economic and population growth, energy requirements, industrial activity, uses of new technology, national and international developments, and urban-rural development patterns.

5.0 Conclusions and Recommendations

5.1 Conclusions. We conclude that:

a. The survey task has revealed valuable and significant programs, program elements, materials and other information relative to the environment which will prove vital during PBEC's operations phase.

b. Environmental Education has numerous examples of excellent programs at all levels but not a large percentage of all the programs available are good. Trends are encouraging.

c. Lower primary environmental education programs are not as strong as higher primary and high school programs. Higher education programs are largely disciplinary in nature.

d. Among non-educational environmental interests, some work by industry (especially) and to a lesser degree by other resources, is excellent. The majority is not substantial or significant however.

e. Internationally, environmental education is generally related to biological sciences and outdoor recreation. However, there is an increasing interest in interdisciplinary environmental education approaches in Europe as well as in the developing countries. Presently, there are several significant examples of excellent environmental education programs which may be useful to public instructional broadcasting in the U.S.

f. Films. Films are numerous and of great variety; most are not good. Those that are tend to be highly specific in area or discipline, carry either a high affective or cognitive load but rarely motivate to action.

g. Commercial & Public Broadcast. Programs on TV and radio from both commercial and public sources can be generally categorized as are the films above. Usually, however, public broadcast material is less expensive, of better aesthetic quality with a higher cognitive load, more postive, affectively, and more action and community oriented.

5.2 Recommendations

a. We recommend that the surveys initiated in Phase I be continued during Phase II at a level necessary to maintain PBEC cognizance of the state-of-the-art.

b. We recommend that this work be done as part of the Information System operation defined in Appendix II.

Bibliography *

1. Exhibit 8, PBEC Final Report. (See Exhibit Index.)

2. Exhibit 13, PBEC Final Report. (See Exhibit Index.)

3. Exhibit 9, PBEC Final Report. (See Exhibit Index.)

4. Exhibit 10, PBEC Final Report. (See Exhibit Index.)

5. Exhibit 4, PBEC Final Report. (See Exhibit Index.)

6. Exhibit 5, PBEC Final Report. (See Exhibit Index.)

7. Exhibit 12, PBEC Final Report. (See Exhibit Index.)

8. Exhibit 11, PBEC Final Report. (See Exhibit Index.)

9. PBEC Consultant Survey. Survey of Some Environmental Education Materials. P. Robinson. September 1970.

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* All bibliographic materials not included in the Exhibits to this Appendix are available on request at PBEC.

10. The Universities and Environmental Quality: Commitment to Problems Focused Education: A Report to the President's Environmental Quality Council, Office of Science and Technology. U. S. Government Printing Office. Washington, D. C. 20402.

11. Environmental Science Centers and Institutions of Higher Education: A Survey Prepared for the Subcommittees in Science Research and Development of the Committees in Science and Astronautics, U. S. House of Representatives. 91st Congress. Environmental Policy Division, Legislative Reference Service, Library of Congress. 15 December 1969.

12. A Survey of Environmental Educational Programs. Geo. Lowe et al. U.S.O.E. 1970. Unpublished.

13. Exhibit 14, PBEC Final Report. (See Exhibit Index.)

14. Exhibit 15, PBEC Final Report. (See Exhibit Index.)

15. Exhibit 6, PBEC Final Report. (See Exhibit Index.)

16. Environmental Quality: The First Annual Report of the Council on Environmental Quality, U. S. Government Printing Office, Washington, D. C. August 1970.

17. Man's Impact on the Global Environment: Assessment and Recommendations for Action. A Report of the Study of Critical Environmental Problems. M.I.T. Press, Cambridge, Mass. 1970.

18. A Survey of the Environmental Activities of Selected Organizations, International Research and Technology Corporation Report IRT-R-41, Washington, D. C. 15 October 1970.

19. Exhibit 3, PBEC Final Report. (See Exhibit Index.)

20. Exhibit 1, PBEC Final Report. (See Exhibit Index.)

21. Exhibit 2, PBEC Final Report. (See Exhibit Index.)

22. Exhibit 1B, PBEC Final Report. (See Exhibit Index.)

23. Exhibit 1C, PBEC Final Report. (See Exhibit Index.)

Appendix II

INFORMATION SERVICES

TABLE OF CONTENTS

1.0 Purpose

2.0 Objectives

3.0 Methods

4.0 Accomplishments

- 4.1 Analysis Planning and System Design
- 4.2 Repository Research
- 4.3 Development of a PBEC Reference Library

5.0 Conclusions and Recommendations

6.0 Exhibits

- 16. Survey of Environmental/Ecological Information Sources
- 17A. Directories and Other Publications
- 17B. Examples of Information Sources
- 17C. New and Proposed Organizations
- 17D. Library Materials Collected by PBEC

II. INFORMATION SERVICES

1.0 Purpose

This report summarizes PBEC's objectives, methods and accomplishments in planning and developing an information system.* It also sets forth recommendations for action for Phase II operations.

2.0 Objectives

The objectives of this task are to:

a. Analyze and plan an information system responsive to PBEC goals and objectives, including establishment of interfaces with internal and external users.

b. Conduct research to identify significant repositories of environmentally pertinent information.

c. Begin development of an appropriate PBEC Reference Library.

d. Support PBEC staff members with information services during the prosecution of Phase I.

3.0 Methods

The Center used information from outside sources, in addition to staff expertise, to define the specific objectives of the PBEC Information System, taking into account the requirements of PBEC staff.

The survey of sources of environmental information was conducted by personal visit, letter and telephone conversations with acknowledged experts in the field and "consumers" of such information.

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* This report satisfies the requirements of "B. Film and Reference Library" of IV, Scope and Method of Approach, pg. 10 of OE Grant, and "Film and Reference Libraries" of Tasks and Products, pg. 24 of OE Grant. It is also in partial satisfaction of the requirements of "A. Surveys" of IV, Scope and Method of Approach, pg. 10 of OE Grant.

Library acquisitions were made conventionally according to staff needs and the guidelines written into the Phase I proposal.

4.0 Accomplishments

4.1 Analysis, Planning and System Design

The analysis quickly established the basic configuration shown in Figure 1. The remainder of the effort was spent considering: system goals and objectives; system process; system resources; control and feedback and, of great importance, interfaces with other PBEC operational subsystems. Alternative approaches were developed and iterated. Currently the system configuration is as shown in Figure 2. Figure 3 shows the information system as it will be developed and operated in Phase II. Note especially Figure 2 the designation of the PBEC Communication Service. This operational element provides responsive information interfaces with external and internal information users, and is the only external user specified at the interface in Figure 3.

4.2 Repository Research

The survey of environmental information sources established that while there is no one central source of such information at the present time, there are thousands of sources of pertinent information in the United States and abroad. (For details, see Exhibit 16 to this report.) PBEC is fortunate to be located in Washington, D. C. which has the largest number of information sources in the country -- the Library of Congress, departments and agencies of the Federal Government, trade associations, national organizations, and so forth. Many of these collections are available to the public for research purposes and inter-library loan and will be invaluable to PBEC as back-up sources to its own collection of information.

4.3 Development of PBEC Reference Library

In the early part of Phase I the main emphasis on acquisition of library materials was on staff needs -- those materials required by staff members in assisting them to expedite the tasks called for in the planning stage. During the second part of Phase I a concerted effort was made to select and acquire a wide range of additional materials for the library. (For details, see Exhibit 17D to this report.)

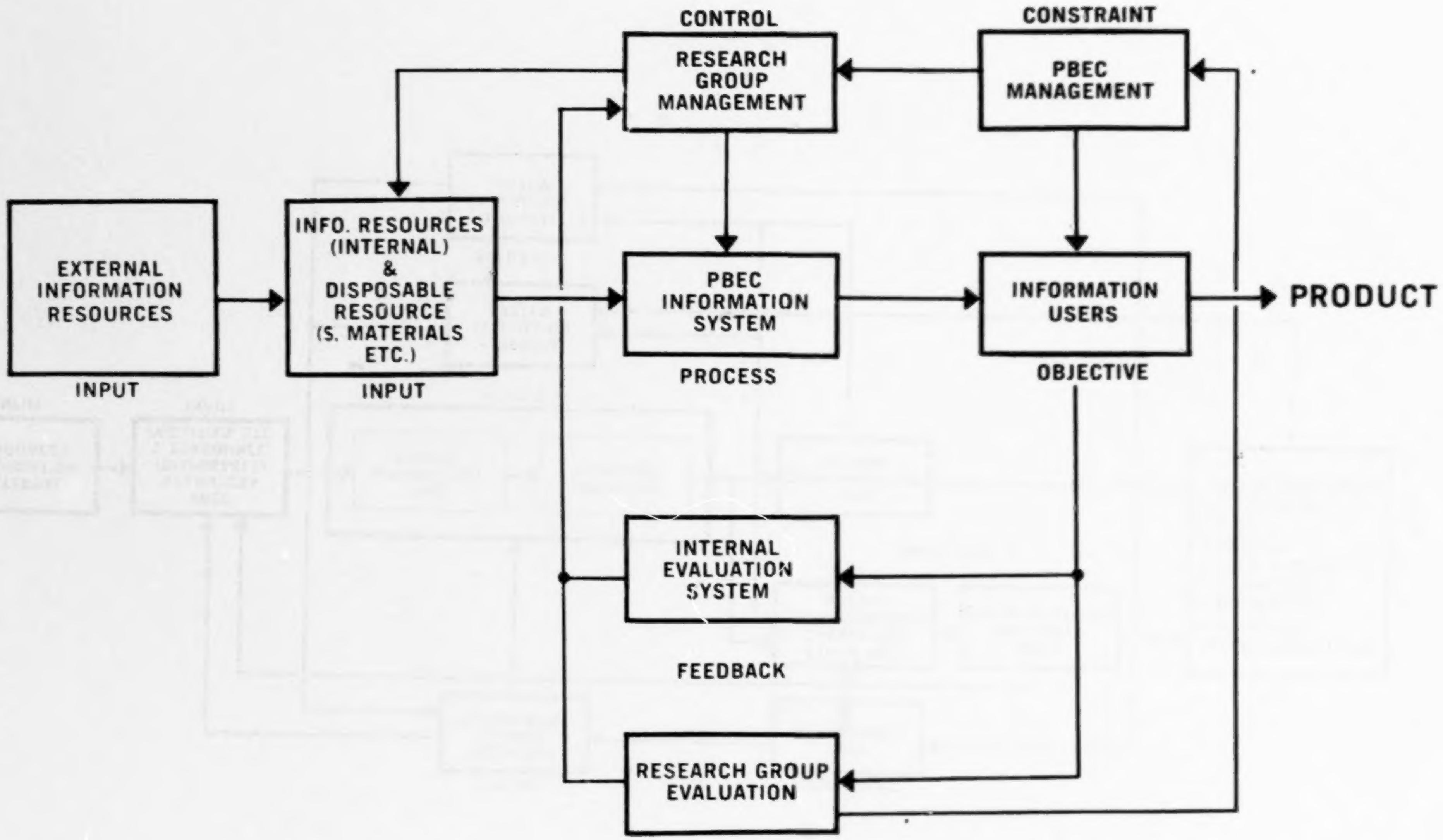
CONTROL
RESEARCH GROUP MANAGEMENT
CONSTRAINT
PBEC MANAGEMENT
EXTERNAL INFORMATION RESOURCES
INPUT
INFO. RESOURCES (INTERNAL) & DISPOSABLE RESOURCE (S. MATERIALS ETC.)
INPUT
PBEC INFORMATION SYSTEM
PROCESS
INFORMATION USERS
OBJECTIVE
PRODUCT
INTERNAL EVALUATION SYSTEM
FEEDBACK
RESEARCH GROUP EVALUATION

FIG. 1
INFORMATION SYSTEM CONFIGURATION

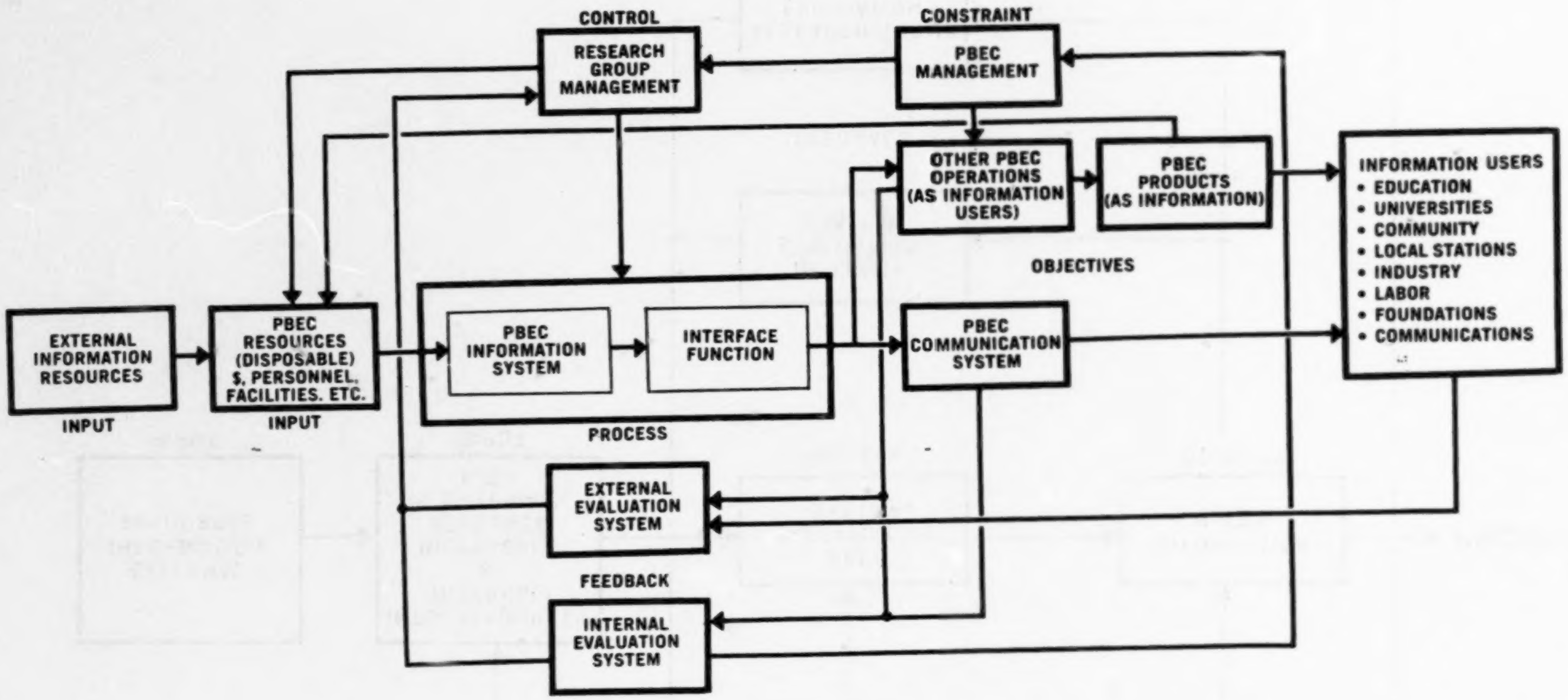
CONTROL
RESEARCH GROUP MANAGEMENT
CONSTRAINT
PBEC MANAGEMENT
OTHER PBEC OPERATIONS (AS INFORMATION USERS)
PBEC PRODUCTS (AS INFORMATION)
INFORMATION USERS
• EDUCATION
• UNIVERSITIES
• COMMUNITY
• LOCAL STATIONS
• INDUSTRY
• LABOR
• FOUNDATIONS
• COMMUNICATIONS
OBJECTIVES
EXTERNAL INFORMATION RESOURCES
INPUT
PBEC RESOURCES (DISPOSABLE) $, PERSONNEL, FACILITIES, ETC.
INPUT
PBEC INFORMATION SYSTEM
INTERFACE FUNCTION
PROCESS
PBEC COMMUNICATION SYSTEM
EXTERNAL EVALUATION SYSTEM
FEEDBACK
INTERNAL EVALUATION SYSTEM

FIG. 2
CURRENT INFORMATION SYSTEM CONFIGURATION

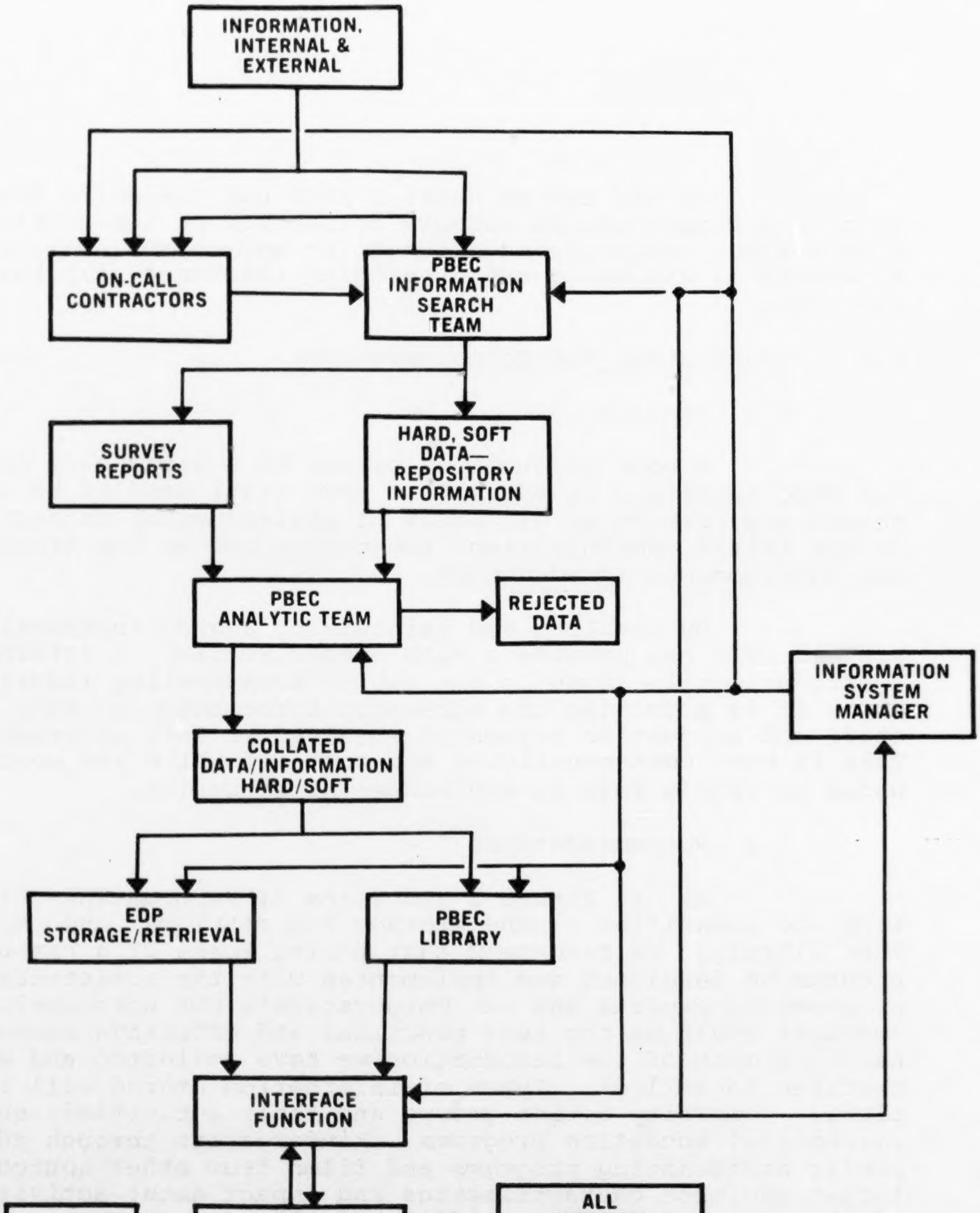
INFORMATION, INTERNAL & EXTERNAL
ON-CALL CONTRACTORS
PBEC INFORMATION SEARCH TEAM
SURVEY REPORTS
HARD, SOFT DATA— REPOSITORY INFORMATION
PBEC ANALYTIC TEAM
REJECTED DATA
INFORMATION SYSTEM MANAGER
COLLATED DATA/INFORMATION HARD/SOFT
EDP STORAGE/RETRIEVAL
PBEC LIBRARY
INTERFACE FUNCTION
INTERNAL USERS
PBEC COMMUNICATIONS SERVICES
ALL EXTERNAL INFORMATION USERS

FIG. 3
INFORMATION SYSTEM IN OPERATION (DETAIL)

At the end of Phase I PBEC has the solid foundation of a comprehensive library collection on the environment with smaller collections on education and communications, and knowledge of available and developing resources (Exhibits 17B and 17C).

5.0 Conclusions and Recommendations

5.1 Conclusions

A good information system is a vital part of the PBEC operation in Phase II. PBEC staff need to be informed and current on all areas of environmental concern, on the latest communications techniques and on new trends and developments in education.

By creating and maintaining a good information system, PBEC can provide a much needed service to external users, primarily those in the public broadcasting industry, while it is providing the necessary information to PBEC staff and production personnel involved in PBEC programming. This is both cost-beneficial and cost-effective and contributes to PBEC's role in environmental education.

5.2 Recommendations

a) In Figure 3 two forms of information collection are identified -- EDP storage and retrieval and the PBEC library. We recommend that during Phase II a computer program be developed and implemented with the assistance of programming experts and the Corporation's EDP personnel. A computer would be the most practical and effective means of handling much of the information we have collected and will continue to collect. Types of information stored will include: community action groups and their activities; environmental education programs, (kindergarten through adult); public broadcasting programs and films from other sources; target audience characteristics and impact data; activities of industry and the scientific community, etc. The program should be devised and a terminal installed by July 1, 1971. This EDP capability will be needed for other PBEC operations, e.g., Management Control and Internal Evaluation described elsewhere in this Final Report.

b) To make the information system operational as soon as possible, additional staff members should be hired immediately to catalog, file and index the large number of publications and other materials already acquired. One of these additional employees should have EDP experience to assist in the storing and retrieval of computerized information.

c) An "on call" contract, or contracts, should be let to organizations that can undertake an intense research project on surveys, if and when required.

d) Information obtained from the surveys should be updated and augmented by PBEC research staff with the assistance of a contract organization, such as the National Association of Broadcasters, if considered necessary.

e) The PBEC library should be strengthened and expanded. The acquisition budget should be substantial in Phase II.

f) Allowance in the budget should be made for possible additional staff, as the Phase II workload increases. This would be relative to the number of requests for information and research from external users and the volume of research generated by production personnel.

g) Film Library. The Phase I proposal required the establishment of a public and commercial film library. During the planning stage when information was obtained on past programs and many were viewed, it became apparent that actual possession of these films and tapes was not necessary. Films and tapes are very costly ($300 - $450 for an hour-long program) and can be rented for a considerably more modest fee, or borrowed gratis in some cases. PBEC should know of the best films and tapes available, where they can be located, their subject matter and quality. We have a large collection of film catalogs which will be updated and supplemented. A cross-reference card catalog will be developed which can ultimately be transferred to magnetic tape and stored in the computer.

Exhibit 16

Survey of Environmental/Ecological Information Sources

Purpose

In Phase I of its planning stage, PBEC conducted a survey of environmental/ecological data and information sources. The purpose of this survey was twofold:

1. To identify reliable sources of information which PBEC can use for its own purposes.
2. To assist PBEC in the establishment of parameters for its own information center.

Approach

In conducting the survey, PBEC was in touch by telephone, letter and personal visit with many people involved in the collection and dissemination of environmental/ecological information and others who, because of their professional or personal interests, seek such information. Among those contacted were:

1. Dr. Henry M. Kissman, National Library of Medicine, and Chairman of the Ad Hoc Committee for the Study of Environmental Quality Information Programs (SEQUIP) in the Federal Government.
2. Mr. John Price, National Referral Center for Science and Technology, Library of Congress.
3. Dr. Francis Kertesz, Oak Ridge National Laboratory, Tennessee.
4. Dr. Richard A. Carpenter, Environmental Policy Division, Legislative Reference Service, Library of Congress.
5. Mr. Stan Degler, Editor, Environment Reporter, Washington, D. C.
6. Mr. Frank Potter, Environmental Clearinghouse, Washington, D. C.
7. Mrs. Hazel Henderson, Director, Council on Economic Priorities and Founder and Trustee, Citizens' for Clean Air, Inc., New York.

8. Conservation Foundation.

9. Scientists' Institute for Public Information.

Many directories and other publications were consulted (see Exhibit 17A) and the Environmental Data Bank hearings were covered (see below).

Findings

"There is no present system for bringing together, analyzing, collating, digesting, interpreting and disseminating existing information on the environment. There is accordingly no reliable way of ascertaining what aspects of man-environment relationships are unresearched or hitherto unidentified."

This quote from the National Environmental Policy hearings of 1969 accurately sums up the situation -- there is no central source of comprehensive information on the environment. Those people with whom we talked or corresponded confirmed this statement.

The Federal Government has already taken steps to remedy this gap. The Council on Environmental Quality, established by PL 91-190 (the National Environmental Policy Act of 1969) was given responsibilities in this area. The Council has contracted with Mitre Corporation of McLean, Va. to make a study on the development of indicators, or indices, of environmental quality and the necessary supporting data systems. It is also to formulate an information system design to include measurements, data management and analysis. A final report to the Council is due by the end of December.

Two other related Government studies are now underway:

1. The Office of Science and Technology's SEQUIP Committee is reviewing government environmental pollution information programs and will make recommendations in late November on existing programs and new programs they consider necessary.

2. The Department of Commerce is studying the feasibility of adapting the methods used in assessing the

Gross National Product to a comparable set of indicators and an index for the environment.

Congressman John Dingell (D. Mich.) and others, concerned by the lack of a central source of information, introduced a bill this May to amend the National Environmental Policy Act of 1969 by providing for the establishment of a National Environmental Data Bank to serve as the central national depository of all information, knowledge, and data relating to the environment. The information to be made available free, on request, to the Congress and all agencies of the Federal Government and state and local governments. Private organizations and individuals would be required to pay a fee.

Hearings were held in June. All government representatives testifying agreed to the concept but felt that a national data bank would prove too costly, unmanageable, involve unnecessary duplication of effort and conflict with the responsibilities CEQ had already been given. Those government officials testifying suggested that an environmental data system, linking all existing sources, would be more feasible.

Several private individuals also testified. Approximately half of these individuals thought a central bank was essential while others preferred the idea of an interconnected system.

September 23, the House Subcommittee on Fisheries and Wildlife Conservation reported out an amended bill to provide for a National Environmental Data System by connecting and upgrading existing data banks. PBEC, as a Federal Government grantee, would have access to information in this system (Sec. 304 - (a) - (1)).

It is hoped that the bill will pass both Houses this session.

The survey established that while there is at present no central source of environmental/ecological information, there is a plethora of information in this country and abroad, especially in the areas of science and technology.

The many directories PBEC has already acquired identify thousands of sources -- some very specialized, some more generalized -- where needed information can be located. It would be impossible in this report to list all existing sources (70 within the Federal Government alone).

Exhibit 17B gives examples of those sources thought to be of greatest value to PBEC. Exhibit 17C gives examples of new facilities which will, when fully operational, provide more comprehensive environmental/ecological information in one location. This attachment also lists some proposed new organizations which have been suggested in recent months in an attempt to remedy the present uncoordinated effort of information collection and dissemination.

Exhibit 17A

Directories and Other Publications Listing Sources of Scientific and Other Environmental Information.

1) Information Resources in the United States. National Referral Center for Science and Technology, Library of Congress, Washington, D. C.

   a) Physical Science, Biological Sciences, Engineering, 1965 (being revised, 1970).

   b) Social Sciences, 1965

   c) Water, 1966

   d) Federal Government, 1967

   e) General Toxicology, 1969

2) Directory of Special Libraries and Information Centers. Detroit, Gale Research Co. Second ed., 1968.

3) Research Centers Directory. Detroit, Gale Research Co. Third ed., 1968.

4) Information Activities of Major International Organizations. Directorate for Scientific Affairs. O.E.C.D., Paris, Second ed., undated (First ed., 1965).

5) Directory of Environmental Pollution Information and Data Programs. Ad Hoc Committee for the Study of Environmental Quality Information Programs (SEQUIP) in the Federal Government. Office of Science and Technology, Executive Office of the President, July 1970 (first draft).

6) A Resource Guide on Pollution Control. American Association of University Women, Washington, D. C. Second ed., June 1970.

7) Encyclopedia of Associations, Volume I. National Organizations of the U.S., Detroit, Gale Research Co., Sixth ed., 1970.

8) Directory of Organizations Concerned with Environmental Research. State University College at Fredonia, N.Y. January 1970.

9) International Environmental Monitoring Programs. Robert Citron, Smithsonian Institution for Short-lived Phenomena, Boston, August 1970.

10) Library and Reference Facilities in the Area of the District of Columbia. Library of Congress, Washington, D. C. Seventh ed., 1966.

11) The World of Learning, 1969-1970. Europa Publications, London, 1970.

12) Conservation Director. National Wildlife Federation, Washington, D. C., 1970

13) National Institute of Ecology: An Enquiry, Volume II Ecological Society of America and Peat, Marwick, Mitchell Co., New London, Conn., July 1970.

14) Subject Collections. New York, R.R. Bowker Co. Third ed., 1967.

Exhibit 17B

Examples of Information Sources Most Useful to PBEC

Science and Technology Division, Library of Congress.

Maintains the largest and most comprehensive U.S. collection (all fields and all languages) of books, periodicals and technical reports in Science and Technology. Provides both general and specialized bibliographic and reference service, publishes directories and bibliographies in many areas of science and technology including numerous subjects concerned with or relating to environmental quality.

National Referral Center for Sciences and Technology, Library of Congress.

The "information desk" of the scientific and technical community. The Center refers people seeking information to the organizations or individuals best equipped to provide the required information. It has listings of professional societies, university research bureaus and institutes, Federal and state agencies, industrial laboratories, museum specimen collections, testing stations and individual experts as well as more traditional sources of information and documents centers, and abstracting and index services. (Of prime importance to PBEC as a means of locating the appropriate information sources.)

National Technical Information Service, Department of Commerce. (formerly Clearinghouse for Federal Scientific & Technical Info.)

Purpose
To provide a focal point of contact in the Federal Government through which the results of government-sponsored research in science and technology are made available to industry, commerce, and the general public.

Holdings: approximately 750,000 government-sponsored technical reports. Bibliographic information can be retrieved from the Clearinghouse computer and copies of holdings can be purchased in microfilm or book form. (One of the principal sources available to PBEC in locating scientific and technical information.)

Science Information Exchange - Smithsonian Institution.

Purpose
To facilitate effective planning and management of

research activities supported by U.S. agencies and institutions. SIE receives, organizes and disseminates information on research in progress to avoid duplication of effort and to inform other scientists about current research. Details and sources of past research also kept but not the results of such research.

Subscribers to the Bureau of National Affairs' Environment Reporter will soon be allowed access to this information too. (PBEC is a subscriber.)

World Data Center, National Research Council.

One of three World Data Centers established to make available data collected during the International Geophysical Year (1957-58) and to update that data. Conducts international exchange of data and publications in accordance with guidelines set forth by the International Council of Scientific Unions.

Nine U.S.-located subcenters collect and disseminate data in the areas of: seismology, gravimetry, terrestrial coordinates; glaciology; oceanography; meteorology; geomagnetism; ionospheric physics, aurora and airglow; cosmic rays; solar activity; rocket and satellite studies.

Environmental Science Services Administration.

Part of the new National Oceanic and Atmospheric Administration, Department of Commerce, created by Reorganization Plan No. 4 of 1970.

Purpose

The mission of ESSA is to describe, understand, and predict the state of the oceans, the state of the lower and upper atmosphere, and the size and shape of the earth, in order to further the safety and welfare of the public, enhance and improve the nation's economy, and assist those Federal departments concerned with the national defense, the exploration of outer space, and the management of natural resources.

One of its subdivisions, The Environmental Data Service, acts as the central data storage facility for ESSA. Extensive data holdings are maintained in the areas of climatology; meteorology; hydrology; aeronomy; space, geodesy; seismology; cartography; oceanography and related environmental sciences.

Center for Short-Lived Phenomena, Smithsonian Institution.

Purpose

To act as an early alert system and clearinghouse for the reception, storage, and dissemination of information relating to three main types of natural events which cause environmental changes -- Earth Science events, Astrophysical events and Biological Science events. The Center investigates and files data on events as they happen.

Environmental Patent Priority Program Information, Dept. of Commerce.

Purpose

To give priority in the examination and processing of those patents claimed by their inventors to improve the air, water or soil. The Office of Information Services is publicizing this program to inventors and the public and providing information to the press, the public, industry, the patent bar, etc.

National Water Data System, U.S. Geological Survey.

Purpose

To develop and operate a coordinated, compatible system through which all water data acquired in the United States, both by Federal and non-Federal organizations, is identified and is available to all users. The identification would include an evaluation of the data as to method of acquisition and the degree of accuracy. No single data bank is visualized, rather a series of centers, each with its own data base, joined together through an indexing mechanism and a communication network.

Federal Water Quality Administration.

Part of the Environmental Protection Agency, established by Reorganization Plan No. 3 of 1970, effective Dec. 2.

Purpose

The FWQA System for Technical Data (STORET) stores in a central computer, water quality data and other pollution control data related to the location, characteristics and economics of waste disposal systems and to pollution-caused incidents such as fish kills and oil spillage.

National Air Pollution Control Administration.

Part of the Environmental Protection Agency created by Reorganization Plan No. 3 of 1970, effective December 2.

Purpose

The storage and retrieval of Air Quality Data (SAROAD) maintains and operates a national air quality data bank to provide summaries and other data to contributing agencies and researches. It standardizes codes and formats for handling air quality data.

Solid Waste Information Retrieval (SWIRS).

Now part of the Environmental Protection Agency created by Reorganization Plan No. 3 of 1970, effective December 2.

Purpose

To organize for quick retrieval the published information concerning current research and technological developments in the solid waste management field throughout the world. Will be computerized shortly.

Transportation Noise Research Information Service, Dept. of Transportation.

Purpose

(a) To develop and operate a storage and retrieval system for transportation noise research information. (b) To provide information syntheses for topics within the poogram scope. (c) To advise on R&D needs and goals in the area of transportation noise abatement.

National Oceanographic Data Center.

Purpose

To collect, process and disseminate oceanographic data (geological, biological and physical properties of sea water). (The oceanographic arm of World Data Center A - see separate entry above.)

Food & Drug Administration, Pesticide Community Studies.

Purpose

To evaluate the effects of pesticides on human health by collecting clinical and biochemical information and analyzing it statistically.

Exhibit 17C

New and Proposed Organizations Concerned with Collection of Environmental/Ecological Information

Biogeochemical Ecology Information Center, Oak Ridge, Tenn.

The Oak Ridge National Laboratory has recently established the Center with a grant from the National Science Foundation. Its mission is to develop a computerized environmental information system to provide reliable information to scientists and others conducting research in or making decisions effecting the environment.

National Environmental Foundation, Washington, D. C.

The Foundation, a private, non-partisan, non-profit organization was founded in June this year to collect, collate, analyze and disseminate information on the state of the environment. It is planning a special data storage and retrieval system for this purpose. Accompanying analysis, research and recommendations are planned to be made available to the general public, industry, government agencies, universities, etc. (A very ambitious project.)

Environment Information Services, New York.

A coalition of conservation, environmental and urban groups. They are computerizing information on group activities, local problems, examples of successful solutions, possible alternatives, sources of information, etc. It is a citizen and community-oriented organization and is intended to serve as an information bridge between groups to facilitate and encourage effective action.

(When fully operational this will be of great value to PBEC in identifying community groups and projects.)

Ecology Forum, New York.

A new private, non-profit organization created this Spring to close the information and communication "gaps" concerning the environment.

The Environment Information Center, part of the Forum, is developing a central data bank to gather, analyze, index and abstract scientific and non-scientific environmental information. Their indexing, abstracting and information retrieval service - ACCESS - will begin December 1. (PBEC has subscribed to this service which has great potential value in Phase II.)

National Institute of Ecology.

The Ecological Society of America, with a grant from the National Science Foundation, is developing a detailed design for a new national organization. Present plans for the National Institute of Ecology call for four main functions in the areas of research, policy research, data handling and communications. The data handling function would include data storage and retrieval, clearinghouse and referral services and data standardization.

International Council of Scientific Unions.

A report published by the Council in late 1969 recommended the creation of a Scientific Committee on the Problems of the Environment (SCOPE). One of its functions would be to operate an International Center for the Environment. Another function of this proposed center would be the collection of information and intelligence on the environment from all sources.

Exhibit 17D

Library Materials Collected by PBEC by the End of Phase I

1. A comprehensive collection of reference books.
2. Approximately 300 books in many areas of environmental concern by experts in the various fields and a smaller collection of significant books on education and communications.
3. Approximately 150 subscriptions to national and international periodicals, newsletters, etc. in the same three categories.
4. Subscriptions to approximately a dozen newspapers, national and regional, to be clipped and filed.
5. Relevant press releases and publications of the U.S. Congress, the Federal Government, trade and other national organizations, labor unions, citizens groups, learned societies, foundations, industry, etc.
6. Samples of environmental education aids and curriculum materials.
7. Information on organizations and individuals concerned with and informed about the environment.
8. Proceedings of pertinent conferences, both national and international.
9. Film catalogs
10. Bibliographies
11. Miscellaneous materials - maps, graphics, slides, film strips, etc.
12. A 22-year-old library of the Congressional Record, Directories, Hearings, etc., given to PBEC by a retiring Member; approximately 350 volumes.

APPENDIX III

ADVISORY BODIES

Table of Contents

Review

Goals and Objectives

Policy Issues

Conclusions and Recommendations

Personnel, Time and Budget

Exhibit 18

Exhibit 19

Exhibit 20

Exhibit 21

III - ADVISORY BODIES

Review

The Center has determined the value of two advisory bodies, has defined their respective roles, has appointed members, and has begun working with them. Membership represents highly diverse disciplines--each, however, with some clear relevance to the multi-discipline task of the Center itself. Contributions at initial Council sessions and Workshops have been valuable and were taken into account during the latter stages of the six-month planning period.

Goals and Objectives

It is the goal of the Center to obtain outside, independent advice on both policy and operational and planning levels. Such advice is not only desirable in the formative and early operational stages of the Center's development; it is required in the public interest, considering the potential national influence of the Center in a major area of public concern.

The Center seeks the collective advice of groups of informed and committed men and women, in addition to individual contributions. Each group can serve both as a disinterested body, free to offer advice independent of any prevailing views within the Center, and as intermediaries with the general public and particular communities of interest. They will bring to the Center expertise and informed opinion and will take away to others an awareness of the Center's goals and capabilities.

Policy Issues

Considering the close and vital relationship of the Center to the Corporation for Public Broadcasting, it is important to take note of the Advisory Committee of National Organizations of the Corporation itself, which has an Environment Subcommittee. Executives of the Center have met with that subcommittee membership to gain insights into the role of advisory groups, and have determined to work with the Corporation's subcommittee, and to see that the Center's advisory activities complement, rather than conflict with or ignore the Corporation's existing advisory apparatus. Indeed, some top representatives of the Corporation's advisory group of organizations are members of the Center's advisory groups. A list of members of the CPB Environment Subcommittee, and a letter sent them on October 29, 1970, will be found in Exhibit 21.

Conclusions and Recommendations

Two units are proposed, an Advisory Council and a Planning Advisory Committee.

The Advisory Council will function at the policy level. It consists of prominent representatives of such fields as social sciences, environmental sciences, art, broadcasting and other communications media, education, industry and national service organizations. The Council will:

- --review the work of the Center at critical stages;
- --advise on broad concepts guiding the Center, on priorities for use of the Center's resources and on means to achieve the Center's goals;
- --assist the Executive Director in relating to financial communities, legislative bodies and other private and public entities.

The Council will meet at the call of the Executive Director at what he deems to be critical stages, but in any event no less than semi-annually.

The Council members were selected on criteria of national prominence, a record of success in a given area related to one of the various disciplines inherent in the Center's goals, and an independent commitment to environment as an issue of high national priority. Persons selected were invited to a meeting held October 2, 1970, in Washington, to acquaint prospective members with the Center and its staff. An account of that first meeting, including an agenda and a list of members of the Council, will be found in Exhibit 18. A subsequent meeting to permit review and comment on this Report was held on November 13. An account of the second meeting will be found in Exhibit 19.

The Planning Advisory Committee will function at the operations and planning level. Its membership includes persons of proven success in their fields, with even more variety of skills than those of the Advisory Council. Operating in either the committee-of-the-whole or in subcommittees designated to correspond to particular needs of the Center, the Planning Advisory Committee will:

--assist in setting operational objectives;
--bring expertise to program development;
--advise on alternative operational plans;
--help determine target audiences;
--provide continuing technical and informational liaison with others in Committee members' fields of endeavor.

The Committee will meet at the call of the Operations and Planning executive in consultation with the Executive Director. It is anticipated that the majority of meetings will be held in subcommittee.

Committee members were selected initially to participate in Workshops held in Washington, one on September 10 and 11 and another on September 17 and 18 in 1970. There were different participants at each of the Workshops, all people successful in their field, and their suitability for the Planning Advisory Committee was soon apparent. Several became members of the Advisory Council, and many have continued to work with the Center as individuals by correspondence, telephone or personal visit. An account of the Workshops, with agendas and lists of participants, will be found in Exhibit 20.

Personnel, Time and Budget

Staff preparation for Advisory Council meetings will be accomplished by existing professional staff under the direction of the Operations and Planning executive. Necessary correspondence to members will be prepared by secretaries in the Office of the Executive Director and the operations and planning executive. One professional staff member in the PBEC Communications Service will have liaison responsibilities.

III

EXHIBIT 18

Advisory Council
Account of First Meeting,
October 2, 1970
and Agenda

PUBLIC BROADCASTING ENVIRONMENT CENTER

1030 FIFTEENTH STREET, N.W.
SUITE 1050 • WASHINGTON, D. C. 20005

TELEPHONE: 202/833-8850

THE ADVISORY COUNCIL

The first meeting of the Advisory Council, charged under the Public Broadcasting Environment Center proposal "to review the work of the Center at critical stages in terms of concepts, methodology and priorities, and constructively advise thereon," was held in Washington, D.C., on October 2, 1970. Eleven members participated; three others sent representatives; seven were unable to attend the first meeting, but asked to be members of our Council and said they expected to attend the second one in mid-November.

After an informal luncheon, Wayne Miller, PBEC's Executive Director, outlined the overall goals and proposed activities of the Center. The aim during this first meeting was to acquaint Council members as fully as possible with the activities and philosophy of PBEC, so that by the second meeting in mid-November, members would be in the best possible position to "constructively advise." Staff members made five-minute presentations on the following subjects: administration; workshops (held on September 11 and 18); research; community organizations; action programs; environmental education and a communications center. Sylvester (Pat) Weaver, CPB Distinguished Fellow, then made a similar presentation on proposed television program format. Discussion of local action programs and TV program format evoked sustained response in the form of questions and debate among Council members. Portions of these discussions were recorded and transcribed, and have been made available to the Council members and to the Center's staff.

Both in the recorded and informal discussions, it was clear that the Advisory Council members were deeply concerned that PBEC succeed in its mission, and communicated strong support for the effort. In doing so, it came close to consensus, if not unanimity that:

> Information presented by the Center must be as reliable as possible, and must be presented with knowledge that today's revelation is tomorrow's dangerous myth;
>
> The Center must make room for as many perceptions of the environment as it can;
>
> The question of degree, presentation and basis of advocacy is perhaps the most difficult policy question of the Center, and will remain so as long as the Center is effective;

Alternatives for action by individuals and by organizations must be presented so as to encourage constructive involvement.

The second meeting was held on November 13. Prior to the meeting, the Center sent members drafts of the six-month report for the U.S. Office of Education. The draft was discussed in detail.

Members of the Council include the following:

Mrs. Erma Angevine	Executive Director Consumer Federation of America Washington, D.C.
Mr. Fred J. Clifton	Education Coordinator Baltimore Model Cities Program Baltimore, Maryland
Mr. Norman Cousins	Editor Saturday Review New York, New York
Mr. William G. Harley	President National Association of Educational Broadcasters Washington, D.C.
Mr. Robert Hastings	President-Elect AIA President Smith, Hinchman & Grylls Detroit, Michigan
Mr. Denis Hayes	Environmental Action, Inc. Washington, D.C.
Mrs. Hazel Henderson	Director Council on Economic Priorities Advisor on Communications N.Y. State Bar Association Founder and Trustee Citizens for Clean Air, N.Y.
Mr. John B. Hightower	Director Museum of Modern Art New York, New York

Dr. Philip L. Johnson	Executive Director Environment Center University of Georgia Athens, Georgia
Mr. William J. Kendrick	Vice President National Association of Manufacturers New York, New York
Mr. Gyorgy Kepes	Director Center for Advanced Visual Studies MIT Cambridge, Massachusetts
Dr. Mary McLaughlin	Commissioner of Health N. Y. Department of Health New York, New York
Mrs. Olga Madar	Vice President International Programs Director Conservation Resource and Development United Auto Workers Detroit, Michigan
Dean Thomas F. Malone	Deputy Foreign Secretary National Academy of Sciences Dean of Graduate School Professor of Physics University of Connecticut Storrs, Connecticut
Mr. Gordon Parks	Photographer, Author, Filmmaker New York, New York
Mr. Peter Seeger	Communicator and Captain of the *Clearwater Beacon* New York, New York

Mr. David Sive	Partner Winer, Neuberger & Sive New York, New York
Dr. Elvis Stahr	President National Audubon Society New York, New York
Professor John S. Steinhart	Associate Director Marine Studies Center University of Wisconsin Madison, Wisconsin
Mr. Walter Straley	Vice President Environmental Affairs American Telephone & Telegraph New York, New York
Mr. Franklin A. Thomas	President Bedford-Stuyvesant Restoration Corporation Brooklyn, New York
Mr. Wolf Von Eckhardt	Architectural Columnist Washington Post Washington, D. C.
Dr. Gary Winkel	Editor Environment & Behavior Based at New York City University
Dr. Paul Ylvisaker	Woodrow Wilson School of Public & International Affairs Princeton University Princeton, New Jersey

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ADVISORY COUNCIL MEETING
MADISON HOTEL-MT. VERNON ROOM
WASHINGTON, D.C.
OCTOBER 2, 1970

AGENDA

12:30 PM Refreshments
1:00 PM Lunch

MEETING

Remarks by Wayne Miller, Executive Director

PRESENTATIONS

Administration:
Thomas Hart, Deputy Director

Workshops:
Martha T. Henderson

Research:
Bruce Pince

Community Organizations:
Allan Kulakow

Action Programs:
Bryce Hamilton

Environmental Education:
Madison E. Judson

Communications Center:
Thomas Schroth

Program Format:
Pat Weaver, Distinguished Fellow, CPB

General Discussion

III

EXHIBIT 19

Advisory Council,
Account of Second Meeting,
November 13, 1970
and Agenda

THE ADVISORY COUNCIL

The second meeting of the Advisory Council was held in Washington, D.C., on November 13, 1970. This meeting was called to obtain the advice of members on a draft of the Public Broadcasting Environment Center's six-month planning-phase report to the U.S. Office of Education, a copy of which had been sent to each Council member in advance. Due in part to inclement flying weather, only seven members were able to participate; four others sent representatives; many of those unable to attend the meeting indicated they would respond by telephone or letter to the draft of the six-month Report.

During the meeting, advice ranged from very specific urging that a one or two-page summary of the entire Final Report be presented at the beginning of the report, to a suggestion that the board itself make a statement of aims for inclusion in the report, stressing the need for presentation of diverse views of the environment, for a consciousness of the international nature of environmental problem-solving, for a broad interpretation of environmental problems and causes to include poverty, war and racism, and for endorsement of President Nixon's call for "a basic reform in the way our society looks at problems and makes decisions." It was agreed that a proposed statement be circulated among absent members for their consideration. (Proposed statement attached.)

Perhaps the most important result of the meeting was articulation of the plan, developed since October 2, to begin almost immediately to provide financial incentive and technical support for local broadcast-involvement programming -- referred to in the report as the "PBEC System." A verbal description of both the system and the deployment of manpower to hasten development of the system was offered by a PBEC consultant in response to a Council member's inquiry.

That description drew from Council members statements of both enthusiasm at the concept and reservation that it was not more clearly stated in the report; PBEC staff members agreed such a description should be included near the beginning of the report.

Specific advice or comment offered by Council members included the following:

--The Environmental Policy Act of 1969, calling for close scrutiny of government activity impact on environmental conditions, should be a springboard for public broadcast programming, with the Center alerting local broadcast stations to monitor Federal studies or "impact Statements" which have direct bearing on their particular communities (Malcolm Baldwin, representing David Sive).

--"I assume that after the introduction you will have a page that summarizes the whole report on one page as well. You have to come up with the guts of the proposal right there in a page or two pages right at the beginning," (William G. Harley).

--"This kind of thing, using the station as a nucleus for environmental community action I think is an absolutely first-rate plan, because it begins to provide the kind of mechanism that will allow for follow-through, to make something happen, so that the broadcast can make a difference. But, the plan does not come through in this draft of the Proposal," (William G. Harley).

--The increased emphasis on local station development since the first meeting "is in no way reflected" in the report (Fred J. Clifton).

--Some of the early discussion in the report could be reinforced with examples, to illustrate what the report proposes, without committing to any specific example (Dr. Philip L. Johnson).

In addition to Messrs. Baldwin, Harley, Clifton and Johnson, participants included Denis Hayes; Mrs. Hazel Henderson; Peter Seeger, who introduced the suggested Council statement of aims referred to above; Dr. Gary Winkel; James Webster, representing Mrs. Erma Angevine; John Yolton, representing Mrs. Olga Madar; and Miss Carol Taylor, representing Dr. Elvis Stahr. For identification of Council members, see list included in report of the October 2, meeting.

At the close of the meeting, Council members were shown a film presentation and information booklet prepared by the Corporation for Public Broadcasting. The film and booklet, produced with Corporation rather than Office of Education funds, will be presented by the Corporation to potential funders as an introduction to the Environment Center.

The meeting was adjourned, with the understanding that the final report as submitted to the Office of Education would be shared with Council members.

November 16, 1970

Statement by the Advisory Council of the Public Broadcasting Environment Center, to be issued at the time the PBEC Final Report is submitted to the U.S. Office of Education.

We have studied the plans and proposals of the Public Broadcasting Environment Center and feel that it cannot assert too forcefully what is happening to our environment, to our world and to our lives in the future.

We believe there is a necessity to reorient our priorities toward life and away from death. We believe there has got to be a world without poverty, without slums, without pollution, without racism, without war, without indifference to what is best for mankind.

We believe that the environmental crisis is a world crisis that must be resolved by world planning and world agreements -- by world cooperation.

We agree with President Nixon when he says, "We must seek nothing less than a basic reform in the way our society looks at problems and makes decisions."

In this regard, we believe that another President, Thomas Jefferson, were he here today, would call for another freedom: "Freedom of the Screen."

What appears on those powerful media, radio and television, must not be chosen by one small group of people, but must be shared by everyone.

Finally, we support the basic goals of the Public Broadcasting Environment Center because we believe that every effort must be made immediately to reverse the deterioration to our planet. Life as we know it will not survive another 100 years if we cannot find the will and the means to manage our own destiny.

PUBLIC BROADCASTING ENVIRONMENT CENTER

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ADVISORY COUNCIL MEETING
MADISON HOTEL - EXECUTIVE CHAMBER #1
NOVEMBER 13, 1970

AGENDA

12:30 PM	Refreshments
1:00 PM	Lunch

MEETING

1:45 PM	Opening Remarks by Wayne Miller, Executive Director
	Discussion
4:30 PM	Promotional Film
5:00 PM	Refreshments

III

EXHIBIT 20

Planning Advisory Committee, Account of Two Workshops and Agendas for Each

PUBLIC BROADCASTING ENVIRONMENT CENTER

1030 FIFTEENTH STREET, N.W.
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PROFESSIONAL WORKSHOPS

Two Workshops were held by the Public Broadcasting Environment Center in September of 1970, one on the 10th and 11th, and the other on the 17th and 18th, with different outside participants at each Workshop.

Both Workshops gathered men and women outstanding in various fields of endeavor, to discuss research and operating challenges and how they met them in their own work. It was a meeting of many disciplines sponsored by an interdisciplinary organization dedicated to environmental awareness, education and action. It was a highly useful exploration of what the future could bring at the Center.

There were a dozen outside participants at each Workshop, and a smaller number of professional staff from the Center. The Workshops provided an excellent means of involving outsiders and making them insiders, while the Center's staff gained new insights into the tasks they would be called upon to perform. Many participants expressed the desire to work with the Center in the future as members of a continuing Planning Advisory Committee.

Purpose

The Center requested a meeting of minds--but not necessarily a consensus of minds--on the very basic questions any organization in the communications business has to face in its initial stages:

- What materials or formats are most effective?
- What techniques best stimulate thought and action?
- What audiences are to be served?
- How can audiences be permitted or encouraged to respond, and what happens when they do?
- How is the worth of the communication effort measured?

Each participant in each Workshop was asked to respond out of his own experience, whether the arts, education, broadcasting, community action, communications or basic research, to the above questions. Although the Center and many of the participants have as their central concern the environment and what to do about it, the environment was not the primary subject. However, the environment was very much on everyone's mind, even as speakers responded to the basic questions. This was especially true in the first

Workshop, which had on the agenda an additional question, "What changes would you want to see as the result of informing people about environmental alternatives?" The first Workshop was broken into two sub-groups, with discussion leaders chosen from the outside participants. The second Workshop remained as one unit, with a chairman from the Center, Miss Martha Henderson. Both Workshops were valuable, and for essentially the same reason: ideas were tested against ideas in full view of key staff members of the Center. The many possibilities for action, and the limitations, too, were exposed for discussion by successful practitioners. Final choices between alternatives, everyone realized, must be made by the Center itself.

September 10-11 Workshop

The first Workshop was held at the Sheraton Park Hotel in Washington. The participants were diverse in background, but the first Workshop was weighted more than the second with people with broad experience and strong views on the environment and what to do about it.

Those attending included:

J. Carter Brown	Director National Gallery of Art
Dr. Lynton Keith Caldwell	Professor of Government Indiana University
Dr. Ruth Davis	Director, Bio-Medical Communications National Library of Medicine
Donald Fabun	Editor *Kaiser Aluminum News*
Denis Hayes	Director Environmental Action, Inc.
Richard D. Heffner	Director Study of TV's Environmental Messages Ford Foundation
Stephen Hess	Deputy Assistant to the President Director, White House Conference on Children and Youth

John P. Milton	Deputy Director International Programs Division The Conservation Foundation
Richard Scammon	Director Elections Research Center
David Sive, Esq.	Environmental Action, Inc. Lawyer Partner Weiner, Neuberger & Sive
Dr. Lee M. Talbot	Senior Scientist President's Council on Environmental Quality
Dr. Benetta B. Washington	Associate Director Women's Program and Education Job Corps Manpower Administration
Calvin Watson	Director Television Station Projects Corporation for Public Broadcasting

Dinner on September 10 featured as a speaker Denis Hayes, who spoke of the attitudes of youth toward the environment and the forces that shape the environment as seen by a founder of Environmental Action, Inc., headquarters for Earth Day. Stephen Hess responded briefly with the viewpoint of the White House official most specifically charged with youth affairs.

The next morning, Workshop discussions began. Changes in the environment, perceptions of the environment and attitudes toward the environment were discussed with the most enthusiasm of all. Some representative views:

Sive: America's frontier attitude contrasts with that of the European; in the U.S., community property is no one's responsibility, rather than everyone's.

Heffner: The U.S. may be losing the capacity to believe we can change things. The hungry and disadvantaged do not care about environment.

Milton: Island residents recognize much better the limitations of population growth and other environmental factors.

Brown: The American concept of individuality and hedonism stands in the way of joint solutions to problems like the key problem that there is a limit to the land we have.

Fabun: Many decision-makers in the business world are isolated and blind to environmental problems, rarely take time out to consider the implications of growth, like one group at Kaiser is planning to do.

Caldwell: Key environment action problems are identified: the finite aspect of the world; the revolutionary implications of protecting the environment, which is "more than just esthetics and cosmetics;" and the institutional changes required by such steps as recycling.

Such discussion helped to highlight for the Center the environment education challenge to be faced in future months. That was not to say the other questions were ignored in the first Workshop. In fact, there were good individual contributions and reactions, if fewer sustained discussions on them;

Scammon: Be careful not to advocate in programs.

Brown: Material for information and education must not be dull, should be in a format both entertaining and interesting. Various publications may be required, business-centered for businessmen and the like.

Heffner: Cable television will permit reaching target audiences.

Talbot: Be positive; negativism will turn audiences off. If we overstate, they will lose interest.

Washington: Reach out to different audiences and let them know you are talking to them in particular; do not force a majority view on anyone.

Brown: Offer alternatives to present behavior and conditions, based on past experience and future possibilities; it falls short of advocacy, but still can lead to the Center's goals.

Davis: We need a way to have people follow up after they see a program, so they don't feel they wasted their time. Education must be based on fact, not emotion.

The summary session led by Dr. Lee Talbot, Senior Scientist on the President's Council on Environmental Quality, contained these points for the Center's consideration and guidance:

> We need research, but because we must sometimes act without it, feedback from our efforts is doubly important, to fill in our lacks of knowledge.
>
> Figuring the costs of environmental change will provide some of the most valuable information for the public to act upon.
>
> If the Center can advocate in the most general terms--that improvement of our environment is desirable, for example--the best way to present specific material is to present alternatives, to offer examples that mean something to specific audiences, to put material in historical perspective and to find the best models of programming, such as Civilisation, USIA drama and Sesame Street, to emulate. Dullness must be avoided at all costs, and audiences' dreams and hopes must be taken into account.

In general, said Dr. Talbot, the September 10-11 Workshops helped to define the dimensions of the environmental problem. Major questions and directions were noted. No answers were provided on how we get a handle on action, but examples of content and techniques of communication were presented.

The first Workshop not only permitted practical and philosophical discussion; it also drew some thoughtful and successful people into participation in the Center in its earliest stages. Within two weeks after the meeting, participants began volunteering suggestions and have reacted with enthusiasm to the Workshop in letters.

September 17-18 Workshop

Participants in the second Workshop, also held at the Sheraton Park in Washington, were all interested in the environment, but many had overriding concerns in other fields, such as education, health, poverty and race relations, advertising and publishing. They included:

Wallace D. Bowman	Assistant Chief Environmental Policy Division Legislative Reference Service Library of Congress
Stewart Brand	Editor Whole Earth Catalogue San Francisco, California
Michael Frome	Conservation Editor Field and Stream
James Karayn	NET Bureau Chief Washington
Byron Kennard	Associate The Conservation Foundation
Ann Michaels	Consultant University Research Corporation Former Director of Audio-Visual Programs OEO
Hanley Norins	Vice President Young & Rubicam
Robert Nunn	Environmental Education National Park Service
Arthur Pearl	Professor of Education University of Oregon
Vincent Rogers	Professor of Education Department of Elementary Education University of Connecticut
Dr. Eli Rubenstein	Assistant Director Extramural Programs & Behavioral Sciences National Institute of Mental Health

At the dinner meeting September 17, Hanley Norins was the featured speaker, making a plea for individualized "deepcasting," as opposed to "broadcasting," based on his experience in the advertising world. Discussion was livened both before and after by a strong assertion by

Michael Frome of the political aspect of the environment campaign on one hand, and assertion on the other hand by Wallace Bowman that the environmental crisis had been recently exaggerated.

The next morning, instructions to participants were more pointed than they had been a week earlier, and were issued by a chairman from within the Center, Miss Martha Henderson. It was the participants' own successful experiences the Center was trying to elicit, she stressed. As a result, there were some intense discussions which accumulated both support and opposition regarding common research and operations problems, from which the Center was able to profit. One of the best of these went this way:

Brand said that with his Whole Earth Catalogue he did not want "to make changes, but to help others who want change by providing an evaluated inventory of tools." Rubenstein said letting people find their own way is best, but some people have to be spoon-fed. In response to a question from Karayn, Brand said people sometimes buy his catalogue for one reason, end up using it for another, implying it is an instrument of conversion of goals. Later the theme was picked up by Miss Michaels, who said that film has been used as an instrument to get people to articulate problems in their community, to recognize and define issues, and to meet face-to-face with each other and the problems; no "spokesmen" or views are imposed. Pearl challenged that concept as being leaderless, and said what is needed to spur a change in goals and sustained action is "a great idea carried forward by great men," and said that leaders must be given a forum. These two views were built upon for some minutes. One side held that the medium must permit the broadest range of alternatives as a means of opening an audience to possibilities, of which they would pick the best. The other side stated that a mind-staggering idea must be presented with utmost forcefulness and amplified by inspirational leadership through the medium. When Brand said his catalogue became a success by getting five or six friends to talk, and letting others overhear the conversation and involve themselves as they wished, he got high marks for manipulating people into personal involvement.

When Pearl spoke at lunch, he was recognized as one of the inspirational men of mind-boggling ideas that he himself advocates as necessary to a goal-creating endeavor such as that the Center proposes. Each was a success in his own way; each had presented his view with the assistance of others. The Center had an opportunity to view the exchange, to inject further questions, and to carry on dialogue with each or both after the Workshop, personally or by correspondence.

There were other discussions, shorter, but frequently recurring, with distinct themes emerging. Some samples, by them:

Program: "I don't want to see another special on environment" (Kennard). Instead, most want programs that offer the maximum "mind boggling" (Pearl), the maximum offering of tools (Brand), and the maximum connection with local action. To the extent the viewer can participate and we can say "You want an experience?" and he says, "Yes," we will be more successful (Norins). Not just "We said," but also, "We heard" (Michaels).

Action: We must understand ecology as "gut politics" in both our messages and in the action we hope to see (Frome). Labor unions fear job loss if polluters lose, but their political force can be harnessed for occupational health themes. Automakers resist expensive anti-pollutants or abolishment, but citizen power can prevail, if "lean and hungry" and in league with scientists, media, and power groups like the American Public Health Association (Kennard). Sound environment is incompatible with the present distribution of power and resources, and we have to decide whether to confront the issue sooner or later--Pearl urges sooner.

Evaluation: We should evaluate our program with two ends in mind: The obvious need to satisfy the quantitative "how many viewing" requirements of our funding source; but more important, the need for us to know if we are doing what we want to do. "First do your research with questionnaires--you have to do it anyway--then gather impressions, and finally and best, see what the result is in action, although this takes three years at best" (Michaels). Nearly all agreed that qualitative questions, though harder to pose, yield more of value than do quantitative measurements.

Reliability: Whatever else we do, we must establish ourselves as a trusted source of information. "Nobody is such a source to the youth" (Pearl). "Commercial television and most broadcast and news sources are not, as far as the public goes" (Karayn).

Approach: "This kind of education is a continuous process" (Rogers). That means that there is no simple, single, solution. "It's not like infantile paralysis--in this case, the simpler the solution, the less helpful it is. You must not fool the people into thinking you have the answer" (Rubenstein).

Effectiveness: We should recognize the absolute imperative of providing alternatives of the present condition. "You must give stirred-up people a substitute--an alternative to what was there before. Otherwise, they become disfunctional (Rubenstein).

Links: We all know there are limits, as a nationally broadcast show too far away from each community to be able to respond precisely to that community's or any individual's own needs. This means we do need to encourage individualized programming at local public stations (Michaels). We also need to overcome the distance with some non-broadcasting means whether through ad coupons, printed media, sea shells, posters, response centers, or "answer labs" (Norins) or face-to-face encounters in action groups, to link remote Washington with each community.

There was one warning which seemed to echo the first Workshop "don't advocate" message of Scammon; Karayn warned, "This is a new function of broadcasting, this one of involvement and participation. You could get cut off by Congress before you start."

Following Through

The Center was heartened by the participation of so many with such obvious high qualifications in their respective fields. Many participants expressed enthusiasm at the conclusion of the Workshops. The Center subsequently thanked each by letter; several have written the Center unsolicited letters of appreciation and suggestion, and several have visited the Center since the Workshops. It is the shared expectation that most of the participants will continue their close relationships with the Public Broadcasting Environment Center in its second, operational, phase.

PUBLIC BROADCASTING ENVIRONMENT CENTER

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WORKSHOP AGENDA

SEPTEMBER 10-11

SHERATON-PARK HOTEL, WASHINGTON, D.C.

In its concern with environmental awareness, education and action programs, the central question which faces the Public Broadcasting Environment Center is: What behavioral changes are needed on the part of individuals and communities to improve the quality of our environment. There are also the important questions of determining how to initiate, reinforce and extend such changes both qualitatively and quantitatively and how to determine our effectiveness.

In order to get the benefit of the experience and thinking of the Workshop participants, who represent a variety of disciplines and backgrounds, the basic questions cited above have been somewhat refined and categorized as follows:

Program Content

What kinds of materials and formats of presentation do you find most effective?

Audience Behavior

What techniques and methods do you consider most effective for stimulating thought and encouraging sustained action on the part of individuals, communities and institutions?

What changes would you want to see as the result of informing people about environmental alternatives?

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WASHINGTON WORKSHOP

SEPTEMBER 10-11, 1970

SHERATON-PARK HOTEL

September 10

6:30 PM	Refreshments, DOVER ROOM
7:30 PM	Dinner, DOVER ROOM Sheraton-Park Hotel Speaker, Mr. Denis Hayes Director, Environmental Action, Inc.

September 11

9:00 AM	Welcome and Briefing Wayne Miller, Executive Director, PBEC
9:30 AM	Coffee Break
9:45 AM	Panel Meeting of Participants Group A-Arlington Room Group B-Richmond Room
12:30 PM	Lunch Speaker, The Honorable Gaylord Nelson, U.S. Senator from Wisconsin
2:00 PM	Panels reconvene
3:00 PM	Coffee Break
3:30 PM	Panel Reports-General Discussion
5:30 PM	Refreshments

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WORKSHOP AGENDA

SEPTEMBER 17-18, 1970

SHERATON-PARK HOTEL, WASHINGTON, D.C.

In its concern with environmental awareness, education and action programs, the central question which faces the Public Broadcasting Environment Center is: What behavioral changes are needed on the part of individuals and communities to improve the quality of our environment? There are also the important questions of determining how to initiate, reinforce and extend such changes both qualitatively and quantitatively and how to determine our effectiveness.

In order to get the benefit of the experience and thinking of the Workshop participants who represent a variety of disciplines and background, the basic questions cited above have been somewhat refined and categorized as follows:

Content

What kinds of materials and formats of presentation do you find most effective in your particular area of expertise?

Communication Techniques

What media and styles of media presentation do you feel are most effective in communicating concerns and opportunities?

Constituent Behavior and Changes

How do you decide what changes you want to see in people or for people as a result of your work?

Constituent Identification

How do you decide which constituents you personally are appealing to or to whom you are accountable?

Feedback

How do your audiences reach you, and how do you use what they offer?

Evaluation

What have you learned from your methods of evaluation which can help us measure change?

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WORKSHOP AGENDA

SEPTEMBER 17-18, 1970

SHERATON-PARK HOTEL

September 17

6:00 PM	Refreshments, DOVER ROOM
7:30 PM	Dinner, DOVER ROOM
	Speaker, Mr. Hanley Norins Vice President and Associate Creative Director YOUNG & RUBICAM New York City

September 18

9:00 AM	Welcome & Briefing, Arlington Room Wayne Miller, Executive Director, PBEC
9:30 AM	Panel Meeting of Participants Chairman, Martha Henderson Arlington Room
12:30 PM	Lunch, DOVER ROOM
	Speaker, Professor Arthur Pearl Professor of Education University of Oregon Eugene, Oregon
2:00 PM	Panel reconvenes
3:30 PM	Panel Report General Discussion
5:30 PM	Refreshments

III

EXHIBIT 21

Environment Subcommittee
of the
Corporation for Public Broadcasting
Advisory Committee of National Organizations,

List of Member Organizations, and
Example of Letter of October 29, 1970

ENVIRONMENT SUBCOMMITTEE

OF THE

CORPORATION FOR PUBLIC BROADCASTING

ADVISORY COMMITTEE OF NATIONAL ORGANIZATIONS

American Association of University Women

*Consumer Federation of America

General Federation of Women's Clubs

League of Women Voters

*National Association of Manufacturers

*National Audubon Society

National Catholic Office for Radio & TV

National Congress of Parents and Teachers

National Council of Churches of Christ

National Council of Negro Women

National Council of Senior Citizens

National Council of Women

National Education Association

National Grange

National 4-H Club Foundation

National Legal Aid & Defender Association

National Recreation & Park Association

National Wildlife Federation

*Represented on Advisory Council of the Public Broadcasting Environment Center by an officer of organization indicated.

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October 29, 1970

SAMPLE LETTER

Mr. James Davis
Special Programs Director
National Wildlife Federation
1412-16th Street, NW
Washington, D.C.

Dear Mr. Davis:

It has been a long time since August, when we met and agreed to form an Environment Subcommittee of CPB's Advisory Committee of National Organizations. I regret that we have been so long getting back to you. We have been talking with some of you informally, and leaders of several CPB Advisory Committee organizations will be reviewing our proposal in their role as members of the Public Broadcasting Environment Center Advisory Council. We do want all of you to know how much we valued our meeting, and to share some of the things we have been doing since then.

We have been under some time pressures in order to meet our November 30, final report deadline for the U.S. Office of Education. Much of our time has been spent examining the present public broadcasting activity related to the environment, coupled with research into local and national environment curricula, literature, films and broadcasts, and other materials related to environmental awareness, education and action. We have also been defining our activities in the first year of operation.

We remain convinced of the need for, and the public interest in, a weekly, hour-long national public television and companion radio program. Segments of this program are being designed now, and we are talking about scheduling, beginning in the fall of 1971. Our broadcast education programming, designed to serve both the home and the classroom, also is beginning to take shape.

But, the environment is not waiting for us to perform our national programs. Our first effort, which will begin immediately after we are funded, will be to encourage public broadcast environment programming at the state and local level. Besides offering an immediate role for our Center, these community efforts will give local identity to the national environmental issues and stimulate steps which the individual citizens and organizations can take to translate concern into involvement.

A growing number of state and local Public Broadcasters are deeply into broadcast-action programs dealing with the environment. Others are working with community groups combatting drug abuse. We are learning from them, extracting models of activity which could be applied in other communities of varying size and makeup. So far, we are in close touch with public broadcasters in the States of Washington, West Virginia, Iowa, North Carolina and New York, and in the communities of Pueblo, Colorado; Hershey and Pittsburgh, Pennsylvania; Binghamton and New York City, New York; Jacksonville, Florida; San Diego, California; Chicago, Illinois, and here in Washington, D.C.

As we begin our operational phase, we intend to give technical, informational and, if adequately funded, financial assistance to stations to help them develop environment programs and community action roles for themselves.

With the pressure of our first major deadline nearly behind us and with a firmer idea of our plans for the future, we expect to call on you regularly for counsel and assistance. We need your ideas in the local broadcast-action area, especially examples from the work of your own members with broadcasters, commercial or public, at the local level. To facilitate this process, I have asked Peter Gall of our staff to serve as permanent liaison to the Environment Subcommittee of the CPB Advisory Committee.

We hope to continue to merit the fine support you have given us so far.

Sincerely,

Wayne Miller,
Executive Director

WM/lgt

APPENDIX IV

TARGET AUDIENCE CHARACTERIZATION

Table of Contents

1.0 Purpose

2.0 Objectives

3.0 Method

4.0 Accomplishments

- 4.1 Characterization of Public Television Audiences
  - 4.1.1 Demographics
  - 4.1.2 Attitudes, Knowledges and Behaviors
- 4.2 Characterization of Commercial Television Audiences and Comparison with Public Television Audiences
  - 4.2.1 Demographics
  - 4.2.2 Attitudes, Knowledges and Behaviors
- 4.3 Characterization of Public Radio and Commercial Radio Audiences
- 4.4 Analysis and Prosecution of Required Research
  - 4.4.1 Research Needed; Public Television
  - 4.4.2 Research Needed; Public Radio
  - 4.4.3 Research Begun
- 4.5 Relationship with Research Resources

5.0 Conclusions and Recommendations

Bibliography

IV. TARGET AUDIENCE CHARACTERIZATION

1.0 Purpose

This report summarizes PBEC's objectives, methods and accomplishments in describing the target audiences, and sets forth recommendations for PBEC's operational Phase II.

2.0 Objectives

The objectives were to:

a. Characterize public broadcast radio and television in terms of demographics and environmental attitudes, knowledges, and behaviors.

b. Compare public broadcast audiences to commercial broadcast audiences where possible.

c. Determine what audience characteristics needed further definition to help attain PBEC goals and objectives, and begin the research required.

d. Characterize special target audiences of particular interest to PBEC by literature and field research.

e. Establish relationships with research functions in public and commercial broadcasting, in industry and in non-profit organizations and institutions.

f. Provide research support to PBEC staff in prosecution of Phase I.

3.0 Method

The approach was straightforward in each of the objective areas. Pertinent data was acquired by literature search and consultation. Contacts were made in the research community. Audience evaluation needs were analyzed, research areas were defined, test instruments were developed and audience research was begun.

4.0 Accomplishments

4.1 Characterization of Public Television ("PTV") Audiences. Based upon interviews in person and by telephone of 47,000 Americans in 1969-70 by contractors* for CPB and PBEC, the folliwng audience characteristics can be summarized.

4.1.1 Demographics

a. Numerically and Geographically. There are about 48 million television households in the U.S. representing about 200 million potential viewers (1).** A conservative assumption, however, is that the mean value for "viewers per set on" is about 2.0 persons, not 3.5, as might be inferred from the data, (200/58). About 75%, or 43 million of these 58 million households are reached by PTV (2); representing a conservative mean of 86 million potential PTV viewers. These viewers tend to be concentrated in urban and suburban areas.

b. Viewing Frequency. In the 4:00 to 6:00 p.m. weekday time slots, about 20% of all American television households are watching PTV, according to a recent Nielsen survey. This represents 11 million television households or about 22 million viewers. Furthermore, about 40% of the total television households now watch PTV regularly (23 million homes; and estimated 46 million viewers) (2,3). By "regularly" it is meant that about 40% respond that they watched PTV "last week." About 15% said they watched PTV "last month." This response represents about seven million homes or about 14 million viewers "last month."

c. Viewing Intensity. PTV viewing intensity is low; the median value is about two hours per week for regular PTV viewers.

d. Age, Sex, Race, Education, Income. There are distinct differences between PTV audience and the general U.S. population (7) in the factors noted in Table 1. PTV audiences are older, distinctly better educated, have higher incomes, and, some data suggests, may have a sligthly higher proportional fraction of blacks than other races (5). There is no sexual difference.

4.1.2 Attitudes, Knowledges and Behaviors of PTV Audiences. There is no recent, credible data on the general attitudes, knowledges and behaviors of PTV audiences, much less any specific information relevant to environmental problems. PTV research to date has necessarily concentrated on demographic characterization and trend identification. Indirect measures of attitudes (such as the program preferences shown in Ref. (3) or the commitment to support PTV, also shown in Ref. (3) are, however, a beginning.

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* American Research Bureau, Inc., Louis Harris & Associates, Inc.; A.C. Nielsen Co.,; Q.E.D. Research, Inc. and others- For specific references cited, see the bibliography attached.

** See bibliography attached.

4.2 Characterization of Commericial Television ("CTV") Audiences and Comparison with PTV Audiences.

4.2.1 Demographics

a. Numerically and Geographically. This characterization and comparison is made in 4.1.1 above.

b. Viewing Frequency. More than 90% of the 58 million total television households watch commercial television regularly, compared to the 60% that regularly watch PTV.

c. Viewing Intensity. Median viewing time for CTV regular viewers was 12 hours per week, six times as much as PTV.

d. Viewing Patterns. At an average, about 50 to 60% of all television households have a set on during "prime time" (32 million households) (1,4). Therefore, about 24 million of the 43 million households reached by PTV will have their set on in "average prime time," constituting a potential PTV prime-time audience of 85-100 million Americans. About 70% of the "average prime time" audience is captured by programming from ABC, CBS and NBC (1,4,5). Therefore, about 17 million of the 24 million households reached by PTV will be viewing ABC, CBS and NBC, and seven million households will be watching "something else." In viewing population terms this means that about 35 million people will be watching ABC, NBC, and CBS; 14 million will be watching "something else." Whether this "something else" is PTV is not known, but with the low viewing intensity values it cannot be more than 50% of the "something else" audience. About seven million viewers in "average prime time" may be watching PTV. This data is not at all conclusive; it is believed that the PTV audience is an "In and Out" audience (5,9). That is, the PTV viewer is thought to select deliberately a specific PTV program to view, and, when that's completed, change the station, probably to ABC, CBS, or NBC. This is confirmed by a recent Nielsen poll showing, in one market, that in one time slot the PTV audience was 342,000 families; 90 minutes later the PTV audience was only 4,500 families!

e. Age, Sex, Education, Race and Income. The viewing audience for CTV is a fair approximation of the U.S. population. Thus, as noted in Table 1 comparing PTV and CTV audiences, the PTV audience is older, better educated and more affluent than its CTV compatriot.

f. Relative Growth. CTV is growing in number of sets but only as an approximate function of population. Saturation has been essentially steady since 1967 with 94% of all households, increasing to 95% in 1970 (1). PTV, on the other hand, is growing rapidly in terms of audience number and market fraction, increasing 40% from 1969 to 1970 (6). Additional growth can be predicated confidently, further penetrating the markets now dominated by CTV. A recent national Harris survey (10) shows that the growth trend continues in 1970 at about the same rate as in 1969. Of particular interest are the following changes in trend: more than 30% of the 1970 audience growth is in the Mid-West and West, in the 21 to 29 year age group, among people who have not graduated from high school, and among black Americans, and women, and those of middle to low income. This trend is counter to the previous audience skew toward advanced age and education, East Coast residence, and high income. (Apparently changes in 1970 PTV programming are attracting a different PTV audience.)

4.2.2 Attitudes, Knowledges and Behaviors of CTV Audiences. Little current credible data is available on attitudes, knowledges and behaviors of CTV audiences. Most research has been limited to viewing demographics and channel preferences. Any attitudinal and behavioral information has been inferred from other measurements of the American populace, operating on the assumption that the CTV audience is identical with the American public. Though the latter may be a valid assumption, it needs confirmation. What is more important, the impact of CTV upon the validated attitudes and behaviors must be measured with much more thoroughness than heretofore.

There is no current information on environmentally related attitudes and behaviors other than the National Wildlife Federation's Gallup surveys (11,12) done prior to the recent surge in national environmental interest.

4.3 Characterization of Public Radio and Commercial Radio Audiences (See Table 2). The data on all radio audiences is dubious because all the credible measures have been made in the home, while it is suspected that much radio listening is done in automobiles, on the street, at recreation

TABLE 1

Comparison of U.S. Population Characteristics with Public Broadcast Audience Characteristics

Parameter	U.S. Population (%)	PTV Audience (%)	P Radio Audience (%)
Age			
<20	40	ND	5
16-20	9	12	ND
21-29	13	18	16
30-49	22	35	44
> 50	25	35	35
Sex			
Male	47	49	35
Female	53	51	65
Race			
Black	11	11	ND
Non-white	12	ND	ND
White	77	89	ND
Years of Education			
<12	46 (70[a])	29	15
12	33 (20[a])	31	36
<16	10 (5 [a])	20	17
16	11 (5 [a])	20	32
Income (000)			
< $5	26	18	9
$5-10	40	32	27
$10-15	22	25	25
>$15	12	25	26
Refused	ND	ND	13

(a) - black population

ND - No comparable data

TABLE 2

Profile of Public Radio Audience

Parameter	Response (%)
Income	
< $5,000	9
$5,000-$10,000	27
$10,000-$15,000	25
> $15,000	26
Refused	13
Occupation	
Professional/Executive	45
Clerical/Sales	16
Labor	25
Retired	11
Refused	3
Sex	
Male	35
Female	65
Age	
< 20	5
21-29	16
30-49	44
> 50	35
Education (years)	
< 12	15
12	36
< 16	17
16	32

and work, etc. What data there is, indicates that there are about 1.7 radio sets in use for every living American (325 million sets) and that radio homes approach 100% (or 62 million) and that almost every American is a radio listener. What sparse Public Radio data there is, indicates that: about 25% of all radio listeners listen regularly to Public Radio (50 million listeners); that those who listen are older, more affluent, better educated, tend to have professional jobs are women and probably include a disproportionately high number of white persons.

There is no recent credible data concerning environmental attitudes, knowledges and behaviors of any radio audience.

4.4 Analysis and Prosecution of Required Research.

4.4.1 PTV Research Needed. General target audience data of demographic variety is needed to confirm relatively scanty PTV audience research data and to keep up with rapid PTV growth. This is now being prosecuted by the Corporation for Public Broadcasting.

General target audience data of an attitudinal/behavioral variety is needed to establish baselines. Furthermore, special target audiences need careful attitudinal/behavior characterization. Almost none has been done.

4.4.2 Public Radio Research Needed. Demographic, attitudinal and behavioral data is badly needed, especially to determine real radio listening patterns, in the street, at play and at work.

4.4.3 Attitudinal and Behavioral Research Begun.

a. Louis Harris & Associates, Inc., under contract to PBEC, the Corporation for Public Broadcasting and the Ford Foundation, has conducted a 3.040 TV household personal contact survey to confirm PTV demographics and begin to establish environmentally related attitudes and behaviors. The questionnaire used is found as Exhibit 22.a (appended). The results are summarized in Exhibit 22.b, attached. The final report is found as Exhibit 22.

b. Environmental Resources Inc. A mail survey of 45,000 environmentally concerned citizens, students and teachers is being conducted to determine environmentally related attitudes and behaviors. The questionnaire used is found as Exhibit 23.a (appended). The results are summarized in Exhibit 23.b, attached. The final report is Exhibit 23.

c. George Nelson Associates. About 10,000 residents of Washington State's Puget Sound area are participating in guided discussions after viewing eight television programs concerning environmental issues and the quality of life. The survey is to determine whether exposure to television viewing and discussion will alter environmental attitudes and behaviors. The preliminary ("in-process") results of the evaluation are summarized as Exhibit 45D.

4.5 Contact with Research Resources. We have contacted companies, individuals, groups and institutions especially knowledgeable in evaluation and testing and in related areas pertinent to attitudinal and behavioral change via formal and informal educational processes.

Among the universities, particularly useful contacts have been made with: City University of New York (Dr. Gary Winkel, Center for Behavioral Psychology); University of Utah (Dr. Gabriel Della Piana, Director, Bureau of Educational Research); University of Michigan (Dr. Angus Cambell, Director Institute for Social Research); University of Wisconsin (Dr. Clarence A. Schoenfeld, Chairman, Center for Environmental Communications and Education Studies); and the Massachusetts Institute of Technology (Dr. C. H. Stevens, Alfred P. Sloan School of Management.)

Several private companies with demonstrated skills in evaluating change as a result of communication have been contacted, including: Q.E.D. Research Inc., Educational Testing Service, Inc., Marshall Kaplan, Ganz and Kahn; and the Institution for Educational Development, Inc. Several are under contract: Louis Harris & Associates, Inc.; George Nelson Associates; and Environmental Resources, Inc.

The National Academy of Sciences Behavioral Sciences Division, experts in HEW and in other government agencies have been contacted, and knowledgeable consultants have been liberally used to take advantage of current best practices in this disciplinary area.

Strong relationships have been established with research experts in the Corporation for Public Broadcasting, (Mr. Leroy Miller, Research Director), the Children's Television Workshop (Dr. Edward L. Palmer, Research Director) and others in public and commercial broadcast.

Professional associations with competence in manipulating and measuring attitudinal and behavioral responses have have been consulted, including the National

Association of Educational Broadcasters, and the American Association of Advertising Agencies.

5.0 Conclusions and Recommendations

5.1 Conclusions. We conclude as a result of the studies done in Phase I that:

a. The PTV audience potentially includes about 85-100 million viewers, about 45 million of whom watch regularly but with low intensity. The audience is largely urban, is older, better educated and has higher income and may be "blacker," proportionately, than the CTV audience; and is growing steadily and quickly. Almost nothing is known about the PTV audience's environmental attitudes and behaviors.

c. The research now under way in Phase I provides initial insight into environmental attitudes and behaviors and confirms demographic data.

5.2 Recommendations. We recommend that:

5.2.1 Research be done to:

a. Confirm and improve credibility of demographic data for PTV and maintain currently.

b. Establish baselines for Public Radio demographic data and listening patterns, and maintain currently.

c. Continue and broaden data base in PTV and Public Radio audience environmental knowledges, attitudes and behaviors.

d. Measure changes in PTV and Public Radio general audience as a result of PBEC programming.

e. Measure changes in specific target audiences' environmental knowledges, attitudes and behaviors.

5.2.2 The research recommended be done in collaboration with other public commercial broadcast research activities whenever possible to maximize benefits relative to costs.

5.2.3 The results from research recommended be included in the External Evaluation System (see Appendix VI, A.2).

BIBLIOGRAPHY

1. Television Fact Book, 1970-71 Edition, Television Digest, Inc., Washington, D. C., 1970.

2. Viewers of Public Television, Louis Harris and Associates, Inc., Study No. 1952, November 1969.

3. A Survey of Public Television Viewing in Eight Cities, Q.E.D. Research, Inc., December 1969.

4. The People Look at Television, G.A. Steiner, A.A. Knopf, N. Y., 1963.

5. Personal Communications, L. Miller, CPB

6. ARB Survey Report "Growth of Public Television in Selected Markets," August 1970.

7. Statistical Abstracts of the United States, 1969, U.S. Department of Commerce, Washington, D. C., 1970.

8. A. C. Nielsen Survey 1970 (unpublished).

9. W. Collison, American Association of Advertising Agencies (personal communication).

10. A Survey of Public Attitudes Toward Urban Problems and Toward the Impact of Scientific and Technologic Developments, Louis Harris and Associates, Study 2044, November 1970, conducted for PBEC.

11. The U.S. Public Considers Its Environment, Gallup Organization, Inc., Report 690IT, February 1969.

12. A Study of the Attitudes of the American Public Toward Improvement of the Natural Environment, National Wildlife Federation Report, July 1969.

Exhibit 22.b to Appendix IV - Target Audience Characterization

SUMMARY OF THE PBEC (LOUIS HARRIS & ASSOCIATES Study No. 2044
QUALITY OF LIFE NATIONAL PTV AUDIENCE SURVEY

This summary presents the principal finding of an initial Quality of Life survey conducted for PBEC by Louis Harris & Associates in October 1970. 3,040 respondents 16 years of age and older were personally interviewed in 225 locations in 15 nationally distributed primary sampling unit areas served by public television stations. This represents approximately 75% of the total U.S. population. Compared to the national proportions, this population is somewhat heavier in the West and lighter in the South, heavier in cities and lighter in rural areas.

This initial study for PBEC focused on two major environmental interest areas: urban quality of life and the impact of technology on the environment.

1. Urban Quality of Life
   a. Overall, 75% of the public rates the community in which they live positively. However, this rating stands at better than 80% positive suburban communities, towns and rural areas, but drops to 65% positive in large cities. The view of the city is even more negative

among non-city residents. They rate the quality of life in the nearest major cities at only 36% positive.

b. Looking to the future, residents of towns and rural areas appear optimistic by 37% to 16%. They expect things to improve rather than to become worse over the next few years. In the suburbs, it is a stand-off: 26% better, 26% worse, but in large cities pessimism is stronger -- 34% expect deterioration compared to 29% who expect improvement in urban quality of life.

c. The top five urban problems as perceived by both city and non-city residents are: crime and physical safety; air and water pollution; over-crowding; inadequate housing; and transportation.

d. These problems have clearly had an impact on urban life. Over 4 in 10 city residents (42%) say the way they live has been affected. Among this 42%, 32% say their health has been affected, 65% say they have felt depressed about them, and 66% say they have thought of moving out of the city because of the problem.

e. The public believes that government must become involved in the solutions to the major problems, that private voluntary action is not enough. Government at the Federal and local levels is perceived as being more effective than at the state level. It is also worth noting that the government's role is seen primarily as one of passing and enforcing appropriate legislation rather than simply educating and persuading the public.

f. As serious as the public feels the problems are, a large majority believe that solutions can be found. At the same time the public is realistic about how long it may take to effectively solve these problems. For most problem areas asked about, at least half of the public feels it will take 5 years or longer.

2. The Impact of Technological Progress

a. The public expresses a good deal of ambivalence about the benefits of technical progress. 89% agree that "American technological know-how and inventiveness gave this country the highest standard of living in the world," but at the same time 72% agree that "as a country we have been so busy developing technology that we have neglected our human needs." Similarly, 77% agree that "technological advance has always been a good measure of man's progress and still is." At the same time, 73% agree that "people have become so surrounded by gadgets and machines they have lost touch with the natural environment." Clearly there are strong cross-currents with Americans believing both that technology has improved their lives and that it has weakened the importance of humane values and the quality of life.

b. For the most part it appears that the public resolves its ambivalence on the side of accepting the benefits of technology. Ownership of products runs high, and even more important, so does dependence on these products. For example,

- 86% own an automobile and 96% of this group consider it a necessity.
- 39% own a second automobile and 69% of this group consider it a necessity.

- 96% own a television set and 55% of this group consider it a necessity.
- 79% own a washing machine and dryer and 91% of this group consider it a necessity.
- 56% own a power mower and 67% of this group consider it a necessity.
- 43% own an air conditioner and 64% consider it a necessity.

c. At the same time consumerism appears to be a growing force. Only 52% give the quality of most consumer goods a positive rating and large proportions of the public are aware of health and safety hazards posed by unsafe automobiles and tires, leaded gasoline, DDT, cigarettes, cyclamates, birth control pills, etc. (Acceptance of the seriousness of the health hazards posed by cyclamates and birth control pills is fairly low.)

d. Similarly, the public is skeptical about the concern that major drugs, automobile, gasoline, food processing and appliance companies have for protecting the health and safety of the public. In none of these areas does a majority feel that the companies are really concerned.

e. It is probably fair to conclude that the public will, if properly informed, demand that American business become increasingly concerned about the impact of their products on the environment and the quality of life in America.

Exhibit 23.b to Appendix IV - Target Audience Characterization

SUMMARY OF THE PBEC "CONCERNED CITIZEN" SURVEY ON QUALITY OF LIFE

This summary presents the principal findings of an initial Quality of Life Survey conducted for PBEC by Environmental Resources Inc. 45,000 questionnaires were mailed to students, teachers and citizens who had previously indicated their concern about environmental matters by participation in Earth Day activities in April 1970. More than 10,000 have been returned as of December 1, 1970 and the results below reflect that national sample.

Most concerned citizens get environmental information from printed media rather than television and believe that such printed information has major impact. Furthermore, they believe that commercial television is more effective environmentally than public television.

Most concerned citizens are principally worried about environmental problems manifested by pollution, population, transportation, urban ugliness and so on. A lesser number are mainly concerned with conservation and utilization of resources but a nearly equal number believe the primary issue is restructuralization of society and re-ordering of priorities.

Most concerned citizens are involved in environmental action. Environmental education and information collection and dispersal occupies most of them, but letter writing, petitioning, political activity, clean-up campaigns and resource recycling are also major activities. Most reject litigation, demonstrations and boycotts as environmental action.

These citizens believe that the most effective environmental action is education coupled with personal participation in clean-ups. Few believe that petitioning, political activity, litigation, boycott and demonstration are effective, though they participate vigorously in petitioning and political activity.

Students and teachers in the sample indicate that less than a third of their schools have environmental education programs but half are planning such programs. Most of the programs will emphasize the resource conservation and biological aspects of the environmental problem and avoid the issues of population, societal values and priorities, etc.

In the school programs, heavy dependence is placed on classroom lecture and discussions, speakers, printed media and materials, because their effectiveness is judged to be greater. Television is not included because it is not judged to be effective. (However, film is judged to be highly effective, which may reflect only the unavailability of television in schools, not its real impact value.)

Appendix V

PROJECT OBJECTIVES

Table of Contents

1.0 Purpose

2.0 Objectives

3.0 Method

4.0 Accomplishments

- 4.1 Attitudes and Knowledges in Specific and General Audiences
    - 4.1.1 Primary and Secondary School Children
    - 4.1.2 Middle America
    - 4.1.3 Racial and Ethnic Audiences
    - 4.1.4 Opinion Leaders
    - 4.1.5 Youth (15-25 years of age)
    - 4.1.6 General Audiences
- 4.2 Measurable Changes to be Produced in Audiences
    - 4.2.1 Knowledge
    - 4.2.2 Comprehension
    - 4.2.3 Analysis
    - 4.2.4 Synthesis
    - 4.2.5 Judgment
    - 4.2.6 Attention
    - 4.2.7 Awareness
    - 4.2.8 Responsiveness
    - 4.2.9 Value Attitudes
    - 4.2.10 Application
    - 4.2.11 Commitment

    4.3 Community Environmental Action Program Objectives

    4.4 Probability of Success in Producing Audience Change

    4.5 Resources

5.0 Conclusions and Recommendations

    5.1 Conclusions

    5.2 Recommendations

V. PROJECT OBJECTIVES

1.0 Purpose

The initial PBEC grant[1] required that PBEC develop plans for an environmental television series and corollary supplemental educational materials to enrich the classroom and home. The programs were to be based upon a dialogue with local communities, coordinated by the local public broadcast station. The programs would hopefully result in understandings, reshaping of values, and individual and community action for environmental improvement.

This report summarizes PBEC's objectives, methods and accomplishments in defining project goals for specified target populations in measurable behavioral terms. It sets forth conclusions and recommendations for action in PBEC's Phase II operations.[2]

2.0 Objectives

We wanted to define public broadcasting program objectives where possible in measurable behavioral terms by specifying the changes in target audience environmental attitudes, knowledges and behaviors likely to produce a preferred environmental effect.

This includes program objectives for general public broadcasting audiences and specific public broadcasting audiences, such as primary and secondary school children, Middle America and others. It should be borne in mind that program objectives set the foundation for all PBEC activities. As such, functions of Program Development, Evaluation and Planning, Environmental Education and others flow from these objectives to form a coherent System.

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1. OE grant [OEG-0-70-3910(508)] to CPB, 5-7-70.

2. This effort responds in part to the requirements of "C. Programs and Target Populations," in IV. Scope and Method of Approach, pg. 10 of the OE grant, and satisfies the requirements of the "Project Objective Report," in Tasks and Products, pg. 24 of the OE grant.

3.0 Method

After setting our goals and objectives, we searched the literature and worked with consultants and our PBEC colleagues to determine how best to focus on environmental programming the current body of knowledge on inducing change in attitudes and behavior.

We initially established which behavioral objectives were environmentally most desirable, most attainable and most measurable, and then altered or confirmed our judgments, based upon opinions of other experts.[3]

The program objectives discussed below are the result of our study. These objectives will be subject to further refinement during Phase II operations. At that time, we will select specific, highly visible and measurable first-year behavioral objectives for operational program content. Of course, programming will also include experimental, exciting work which may be more difficult to measure immediately. This programming may have objectives which, possibly less behavioral in nature or less measurable, are deemed significant to the progress of environmental education.

The Environmental Education and External Evaluation Groups and their advisors, consultants and contractors will be centrally involved in the formative development process during Phase II. This coordination will assist, and in some instances, determine the structuring of these objectives into programming and assist effective evaluation of their attainment.

4.0 Accomplishments

4.1 Attitudes and Knowledges in Specific and General Audiences.

PBEC recognizes that each viewer is the product of an unique set of attitudes and knowledges that define his position within the larger context of his environment and fellow-man. These predispositions have been shaped by his entire range of past experience, and to a varying degree, continually undergo modification and change--(both in content and complexity)--so as to make them consistent with newly encountered experiences.

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[3] See: PBEC Workshop Reports - Appendix III; Exhibits Index Vol. I.

Despite the uniqueness of each individual, however, such variables as age, level of education, socio-economic status, and racial identity develop a commonality of life experiences between individuals, and therefore a relative commonality of existing attitudes and knowledges that are susceptible to modification and change. It is with this in mind that PBEC has identified and delineated a specific set of target audiences. By taking into account existing cognitive and attitudinal similarities within target audiences and differences between target audiences,[4] PBEC programming can be geared to both reflect and utilize these similarities and differences. Desired objectives for each target audience can thus be cost-effectively programmed, and the potential for maximum impact upon the attitudes and knowledges of viewers in each target audience greatly increased. Project objectives for each specific target audience are presented below:

4.1.1 Primary and Secondary School Children. PBEC programs, auxiliary media, and "informal" educational efforts directed at primary and secondary school children will seek to establish or modify the existing cognitive and attitudinal levels so as to facilitate behavior patterns consistent with beneficial environmental effects. The specific educational programs planned are described in Appendix X.

With a goal of enhancing knowledge levels, primary and secondary school children will be given an understanding of the eco-system and the inherent limitations posed by finite quantities of non-renewable resources, thus focusing emphasis upon an understanding of the elements, magnitudes, relationships, organization and dynamic interdependency of the eco-system. Included in their study will be an understanding of energy sources, pollution sources, natural aging processes and the means through which aging processes have been accelerated.

An increased comprehension of the severity of the environmental problem will be provided by means of examples of changes in the eco-system which have resulted from man's inability and/or unwillingness to consider the future consequences of his actions. Further, having seen how the elements of the eco-system interact and thereby influence the quality of life of all living organisms, the primary and secondary student will be helped to understand that man is a part of the eco-system, and like all other animals, unable to escape it.

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[4] See Exhibit 22, Harris poll.

Finally, the learner should accept the fact that while man's ability to adapt to his environment is indeed remarkable, man's erroneous belief that science and technology are infallible problem-solvers has permitted him to elect a life style that is threatening his very existence.

Given a sound knowledge base, students will be provided learning experiences from which an awareness of, and a willingness to, study man's environmental problems and alternative solutions to the problems, will be developed. This having been accomplished, the student should be encouraged and practiced to become responsive to, and committed to, the search for acceptable consumer practices which would help eliminate waste and pollution. Further, he must be encouraged to work toward the elimination of environmentally detrimental practices of organizations to which he or his parents belong. Central to this will be an effort to create an internalized value system relative to the environment which encourages an I/Thou sharing of environmental responsibilities and benefits, and modification of the individual and group behaviors currently destroying the environment.

The student will also be given new ways of perceiving his world and of building it. The interplay of the man-made environment with the natural one, and the new options children might begin to dream about effecting, will also be a part of educational programs.

The teachers and parents will be encouraged to understand and share with the students these new perceptions of the environmental responsibilities and benefits. Dialogue between student and teacher, student and parent, and parent and teacher will be fostered. A sharing of the learning experience at every appropriate level will be sought, mediated by local public broadcasting station environmental programming.

4.1.2 Middle America. PBEC programming[5] aimed at this relatively generalized target audience will seek to modify the existing cognitive and attitudinal levels of each viewer so as to facilitate behavior patterns consistent with beneficial environmental effects. Greater emphasis will be placed, however, upon developing a set of values concerning the environment that will serve as a firm base for wise judgments and effective action beneficial to the environment. In particular, this effort will seek to create a value system concerning environmental responsibilities and benefits, with recognition that, only by seeking and promoting general environmental good, will personal environmental benefit result. The viewer will be asked to consider life style options, (including consumer patterns) and alternatives which he may take with special focus on the interaction between man and his environment, and man and man, and an emphasis on causal relationships, effects, sequences, and consequences. A personal willingness to permit the application of increasingly larger portions of the gross personal income to actions which are designed to reduce or eliminate environmental problems will be sought; as will a willingness to work within organizations (industrial, social, political) to effect change in any organization's policies and procedures which may have a negative effect on the life style of this or future generations. The need will be presented to take personal, responsible action in each person's "micro-ecosphere," even at some sacrifice of personal comfort.

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[5] See Appendices VII, X and XI, and "Activities" section of the Final Report.

4.1.3 Racial and Ethnic Audiences. The mass media are a potent force in reaching inner-city populations constituted principally of racial and ethnic groups. Research findings on media show that they own radio and television sets to virtually the same extent as the balance of the population. Further, research trends indicate that urban blacks, Puerto Ricans, and Chicanos tend to spend more time watching television than does the general population. Of particular interest to PBEC is the finding that a slightly higher proportion of blacks than that of other races may be viewers of PTV.[6] Given this relatively high rate of media usage, PBEC programming has an excellent opportunity to reach these target groups, and to bring about changes in attitude and enhancement of knowledges relative to environmental matters.

PBEC recognizes that urban black and Chicano minorities place high priorities on housing, employment and education as urgent problems requiring solution. In their view, these transcend conventional "biophysical" environmental problems, despite the fact that in some respects, they are more vitally affected, as by air pollution, than non-city residents. There is also a tendency among some of the disadvantaged to dismiss environmental concerns as simply a "white fad" or "cop-out," avoiding confrontation with their reality. Taking this into account, PBEC programming[7] will be designed to respond to these minorities' perceived environmental needs and demands, especially as they relate to housing, education and the quality of urban life. Further, emphasis will be placed upon educational and employment opportunities directly related to the growing manpower need for technicians, paraprofessionals and professionals to implement the technology of pollution control and resource conservation. In effect, frequently prevalent feelings of hopelessness will be countered by the community-generated specific and achievable modes of action that promise short and long-term benefits for the environment and their own human condition.

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[6] Viewers of Public Television, Louis Harris and Associates, Inc. Study No. 1952, dated November 1969.

4.1.4 Opinion Leaders. Demographic data show that there are distinct differences between PTV and commercial TV audiences.[8] The PTV viewer is generally older, better educated, and has a higher income than the CTV viewer. These differences are significant in that they suggest that the PTV viewer may potentially play a unique change-agent role in facilitating PBEC environmental objectives.

Mass communication researchers and students of diffusion of innovations have shown that mass media typically do not exert their influence in isolation, but rather function among and through a nexus of mediating factors. Among these are audience predispositions and the derived processes of selective exposure, selective perception, and selective retention; groups and group norms; interpersonal dissemination of the contents of communication; and perhaps most importantly, the exercise of personal influence and opinion leadership. It is by means of the latter, manifesting itself in the form of networks of interconnected individuals, through which mass communications are channeled and ultimately achieve their desired impact on an audience. This process is characterized as a "two-step" or "multi-step" flow of communication: ideas flow from the mass media to opinion leaders and from these to the less active sections of the population. Thus, on an individual level, when a person passes through the successive stages of awareness, interest, evaluation, trial, and adoption, in the course of accepting any new idea or product, the mass media are relatively more influential in the early informational phases, while it is impersonal influence that is more effective in the later phases of deliberation and decision.

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[7] Operating principally through community action programs and secondarily via general broadcast and educational "narrowcast".

[8] Harris 1969 Study.

This theoretical framework has important implications for PBEC project objectives. Given the rather special character of the PTV audience, it appears that PBEC programming will have a unique opportunity to reach those very individuals who are most likely to function as opinion leaders during the later phases of the diffusion process; and who will thus serve to reinforce and disseminate, for the entire population, the environmental knowledges and appeals transmitted by PBEC programming. Therefore, PBEC project objectives for this target group will be to enhance their knowledge base, induce an environmentally beneficial internalized value system, increase their responsiveness toward environmental matters, and most importantly, foster a readiness to take effective personal action -- both in terms of individual personal behavior and in influencing others within their peer groups to adopt behavior patterns calculated to have beneficial environmental effects. Following success in mustering the interest and energies of opinion leaders, local stations will be able to provide broadcasting and community involvement resources to reach and motivate the broader local population in the drive toward a better environment.

4.1.5 Youth (15 - 25 years of age). As potential change agents, youth occupies a unique position in today's society. Their idealism and generally high level of motivation, when coupled with a sound knowledge and attitudinal base, and appropriate channels for action, comprise a potent force for constructive change. PBEC programming will seek to utilize this idealism and motivation, provide the requisite knowledge and attitudinal inputs, and suggest modes of action aimed at beneficial environmental effects. Thus, an intensive cognitive and attitudinal media programming format will be directed at this target audience. Moreover, special emphasis will be placed upon creating programming that will encourage as well as instruct these viewers in constructive modes of action within social, political, and industrial organizations, so as to effect changes in those organizations' policies and procedures that are detrimental to our environment.

4.1.6 General Audiences. We recognize that the American public is not one audience. It is many audiences, with each majority category of the population consisting of "a variety of minority interests as distinct as any one individual is from another." [9] For this reason we have emphasized the specific target audiences in earlier paragraphs. But we hope to attract a broad audience, too, comprising all those "minority groups" which make up the "general audience." No matter what the specific objectives may be related to a specific target audience, then, there are knowledge, attitude and behavior changes we wish to produce in all who view our programs. These changes are discussed below.

4.2 Measurable Changes to be Produced in Audiences.

These are the changes we want to produce and measure in all who watch our programs

4.2.1 Knowledge. Increase the viewer's specific and abstract knowledge about the environment, emphasizing the "systems concept" of the environment and perception of environmental reality.

4.2.2 Comprehension. Increase the viewers' comprehension of the environmental problem allowing translation of his knowledge about the environment into preferred environmental behaviors.

4.2.3. Analysis. Increase analytic capability in the viewer. He must better understand the elements, magnitudes, relationships, organization and the interdependency of the environment. This will help him relate his knowledge and his actions to the environment.

4.2.4 Synthesis. The viewer's ability to synthesize new perceptions about the environment must be increased. Recognition of self-other relationships, and the ability to communicate and operate upon his synthesis should be increased.

4.2.5. Judgment. The viewer's ability to make judgments upon his actions and others', relative to the environment, must be increased. The ability to sift evidence against environmental reality should be enhanced in the viewer.

4.2.6. Attention. A heightened state of attentiveness relative to environmental matters must be produced. This attitude can be induced by programming which also increases the receptivity of the viewer: positive, humane aspects of the environment shall be emphasized.

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[9] Public Broadcasting: A Report to the People, CPB, Sept. 1970.

4.2.7 Awareness. With improved attention and receptivity, increased awareness of environmental problems can be induced, emphasizing reality.

4.2.8 Responsiveness. The audience will be encouraged to develop responsive attitudes toward environmental matters and a readiness to take effective personal and group action.

4.2.9 Value Attitudes. Sound environmental values will be introduced, designed to serve as a firm base for wise judgments. A value system to encourage sharing of environmental responsibilities and benefits will be portrayed. Such values may alter the personal and collective behaviors now so destructive to the environment.

4.2.10 Application. Motivate the viewer to act alone, or in a group, using his new knowledge about the environment.

4.2.11 Commitment. The general audience, as a result of PBEC programming, should have an attitude of commitment; a determination to act, using new values, attitudes and knowledge.

Several consultants have recommended that to achieve the foregoing objectives, program objectives should also include:

1. Identity Establishment. Personal identity, relative to a sense of environmental place and belonging is desirable.

2. Diversity/Unity Concepts. Environmental diversity sometimes overwhelms our decision and action ability. Programming should help the viewer recognize real alternatives, based on deliberate judgments operating from valid values. At the same time, knowledge must be provided to the viewer that helps him in choosing. Also he must be made aware of the implication of his acts to the entire environmental system.

3. Coping Functions. An attitude of hope, which engenders an ability to confidently problem-solve, is important.

4. The Environmental System as Process. Show that all the viewer's actions are interrelated to the entire environmental system. He must be made aware of the "I/Thou/It" environmental relationship, and that his action energizes that relationship.

5. Generalized Value System. The viewer must be made aware that value systems are not "thing-related" but "conceptualized," and that "good" values operate in all alternative situations. Certain basic generalizations by which we operate our lives as a people must be developed here.

4.3 Community Environmental Action Program Objectives.

Encouraging community environmental improvement through community action is a principal PBEC objective. Primary, secondary and higher environmental education programs, public information and education programs, citizen action programs, institutional and organizational responses and other appropriate programs may be mediated through PBEC's support of local public broadcasting stations. The establishment and operation of this PBEC System is detailed in Appendix XI. The following objectives are anticipated through its operation.

Some can be quantified; these are considered in part in Appendix XI A 2, External Evaluation. Some more directly coupled to the PBEC System include: the number of stations being supported; the number of affiliations made by local stations with local educational government agencies and institutions; the number of programs produced locally, the number of children and teachers involved in community action programs outside the confines of the school; the number of parents and their children working together on neighborhood programs; local ordinances initiated and passed; state statutes amended and enforced and other civic and political action taken.

Other community action objectives are less quantitative but can be sensed by expert evaluators skilled in "quantification of the subjective". On-site in-process observers can identify shifts in community attitudes and behaviors, changes in parent-student-teacher affective relationships, alterations in community-government-institution-industry dynamics and the like. What changes specifically will be sought will depend, of course, upon the intents of the local stations and communities.

4.4 Probability of Success in Producing Audience Change.

There is much literature and experience on media effects on attitudes, knowledge and behaviors. However, there is little consensus on the kind of change, the degree of change, and the permanency of change that can occur. We do know that, even given a mass communication monopoly, not all the targets will change position and the process takes time. As Appendix VI A 2, "External Evaluation" points out, behaviors may change without changes in attitudes; and the reverse is also true. PBEC by no means has a monopoly; accordingly we can expect, given public broadcasting's exposure frequency, and intensity of viewing (see Appendix IV "Target Audience Characterization"), to have some lesser effect at first than our competition. What must be done by local communities, of course, is: a) to define carefully certain specific desired changes in the environment to a more preferred state; b) then plan carefully to modify known audience attitudes, knowledges and resultant behaviors so as to move toward that preferred state; c) evaluate quantitatively and qualitatively whether the desired changes have been induced; d) alter the PBEC programs in process to approach the ideal model; and e) reintroduce revised program. This model and process is defined in some detail in Appendix VI. Section A.2, "External Evaluation".

4.5 Resources.

Contact has been made with individuals, groups, and institutions especially knowledgeable in educational and communication psychology and in evaluation and testing. Among the universities, particularly useful contacts have been made with: City University of New York (Dr. Gary Winkel, Center for Behavioral Psychology); University of Utah (Dr. Gabriel Della Piana, Director, Bureau of Educational Research); University of Michigan (Dr. Angus Campbell, Director, Institute for Social Research); University of Wisconsin (Dr. Clarence A. Schoenfeld, Chairman, Center for Environmental Communications and Education Studies); and the Massachusetts Institute of Technology (Dr. C. H. Stevens, Alfred P. Sloan School of Management).

5.0 Conclusions and Recommendations.

5.1 Conclusions. As a result of the study conducted during Phase I, we conclude that:

5.1.1 Changes in target audience attitudes, knowledges and behaviors can be specified and effected, which should result in action toward a preferred environmental condition.

5.1.2 Cognitive change objectives in the general audience should include increased environmental information, comprehension, application, analysis, synthesis and judgment.

5.1.3 Effective change objectives in the general audience should include increased attention, awareness, responsiveness, and commitment and development of preferred environmental value sets.

5.1.4 Specific Target Audience Programming Objectives:

a) Primary and Secondary School Children. Knowledge of the eco-system and the child's place in the system will be emphasized. Environmentally beneficial behavior patterns will be elicited and mediated by an internalized environmentally-oriented attitudinal system.

b) Middle America. Major emphasis should be placed on the development of a new environmental value system producing beneficial personal and group action.

c) Ethnic and Racial Groups. Emphasis will be placed on environmental changes desired by inner-city groups: i.e., housing, education, employment and quality of urban life.

d) Opinion Leaders. Influential people will be encouraged to take personal, effective, environmental action. More importantly, PBEC will influence these opinion leaders to reinforce and disseminate the PBEC environmental message.

e) Youth. Using youth's environmental idealism, commitment and motivation, the PBEC objective will be to provide knowledge and suggest and facilitate action benefiting the environment.

f) Teachers and Parents. Using the motivation of teachers and parents for educational enrichment, the PBEC objective would be to motivate a continuing dialogue based upon environmental knowledges and values.

5.2 Recommendations. We recommend that:

5.2.1 In the first year of Phase II operations, PBEC produce programs which, via multiple media, and using formal and informal continuing education processes, attempt to effect changes in relevant knowledges, attitudes and behaviors.

5.2.2 Specific, short-term, highly visible, measurable first-year behavioral objectives be selected early in Phase II for inclusion in program development effort, from among the general measures outlined above, and in accordance with the system described in Appendix VI A 2, "External Evaluation".

5.2.3 The PBEC program concept and program development effort be closely monitored by the PBEC Environmental Education group and their consultants and the External Evaluation group and their consultants to assure that program format and content reflect the informational, attitudinal and action objectives.

5.2.4 The External Evaluation group and their contractors and consultants participate in the program development process to allow the development of effective evaluation devices for measuring changes in knowledge, attitudes and behaviors.

5.2.5 PBEC management, as an intrinsic part of their system design, enforce attention to attainment of these objectives by all PBEC operational elements.

BIBLIOGRAPHY

Community Attitudes in Bedford-Stuyvesant: An Area Study. The Center for Urban Education, Summer 1967.

Environmental Education: Planning for the Future of Man: Report on Planning the Role of the U.S. Office of Education. The Environmental Education Planning Group, Dr. P.R. Messier, Chairman, June 1970.

Greenberg, B.S. and Dervin, B. Mass Communication Among the Urban Poor. Report No. 5, Project CUP: Communication Among the Urban Poor. Department of Communication, Michigan State University, March 1969.

Klapper, J.T. The Effects of Mass Communication. New York: The Free Press, 1960.

Rogers, E.M. Diffusion of Innovations. New York: The Free Press, 1962

Viewers of Public Television, Louis Harris and Associates Inc. Study No. 1952, dated November 1969.

Public Broadcasting: Report to the People 1970. A Report by the Corporation for Public Broadcasting September, 1970.

Appendix VI

ADMINISTRATION

Table of Contents

A. Management System

1. Planning
   - 1.0 Purpose
   - 2.0 Objective
   - 3.0 Method
   - 4.0 Accomplishments
   - 5.0 Conclusions and Recommendations

2. External Evaluation
   - 1.0 Purpose
   - 2.0 Objectives
   - 3.0 Methods
   - 4.0 Accomplishments
   - 5.0 Conclusions and Recommendations

3. PBEC Management Control & Internal Evaluation System
   - 1.0 PBEC Management System Concept
   - 2.0 Phase I Analysis and Recommendations
   - 3.0 Phase II Development of the PBEC Management System
   - 4.0 Elements of the PBEC Management System

B. Organization and Staffing

C. Administrative Policies & Procedures

Part I Public Broadcasting Environment Center Personnel Policies & Procedures

Part II Compensation and Classification Program

Part III Accounting and Control Procedures

Part IV Procurement and Contracting Guidelines

A. MANAGEMENT SYSTEM

1. PLANNING

1.0 Purpose. This report summarizes the objectives, methods and accomplishments of the PBEC staff and consultants in the preparation of a PBEC Plan, and sets forth recommendations for action.

2.0 Objective

2.1 General Planning Task Objectives. This is the planning task. The general objective of the planning task is to produce a valid, tested plan which describes the operations that PBEC will implement in the next five years to attain its goals and objectives.

2.2 Specific Planning Task Objectives.

a. Help PBEC staff establish goals, objectives and strategies for the Phase I operation.
b. Define these in system plans and appropriate control documents to facilitate Phase I operations.
c. Help PBEC staff establish goals and objectives and strategies for the Phase II operations.
d. Provide system plans and appropriate control, scheduling and budgeting documents required to express these goals and objectives in the Final Report.

3.0 Method. The planning process began with a series of internal consultative sessions with PBEC senior staff to establish goals and objectives for Phase I and Phase II. A series of reviews of the resultant decisions (expressed in documents and diagrams) further refined the plans for Phases I and II. It must be emphasized that this was a simultaneous, instructive process in which strategy decisions were immediately implemented (in terms of staff work, and contractor and consultant labor) and then altered where necessary.

4.0 Accomplishments.

4.1 Systems Design. The PBEC Phase I and Phase II over-all system design is described in Exhibit 24, attached to this section of Appendix VI.

4.2 Systems Plan. A systems plan was prepared and is set forth in Exhibit 24 to this report. The enclosure paraphrases the PBEC plan for performance of Phase II. We describe, in systems analytic terms, the allocation of resources, the processes and the expected outcomes required to prosecute the PBEC program in an optimally cost beneficial and accountable manner. The following definitions are useful in reading the plan:

- Goals. Statements of intent describing some desirable future condition or state. Goals infer beliefs or values, describing in ideal/real terms what we desire "to be." Goals are general and so give over-all direction to planning and provide the basis for objective development.

- Objectives. Statements which describe time-related, measurable end-results. Objectives are logically related to goals, realistically attainable in terms of constraints and quantifiable. If the objectives are fully attained, goals are realized.

- Product. Physical or conceptual goods produced as a result of process. These goals may constitute, in themselves, objectives and/or make objective attainment real by interaction with reality.

- Constraints. Those forces acting on the system tending to modulate objective attainment; usually constraint implies inhibition; but sometimes constraints enhance objective achievement.

- Strategies. Those comprehensive plans and schemes for achieving objectives. The strategies are always: performance/result oriented; describe actions and process; and are selected to utilize resources cost-effectively to achieve objective benefits. Note: In action, strategies become "process" or "operation."

- Tactics. Minor plans for tasks which, when performed, execute the strategy.

- Control. The management function which, using the plan: allocates resources; defines organization; uses data to modulate operation (process) to attain objectives and realize goals.

- Resources. Those materials, human and conceptual goods which, when operated upon, produce product.

- Feedback. The evaluative process which compares outcomes with a model and provides the results of that comparison to control. This allows resource allocation and process to be altered so as to approximate outcome more closely to specified objectives.

5.0 Conclusions and Recommendations.

5.1 Conclusions. As a result of the planning effort we conclude that a viable short- and long-range PBEC plan has been developed.

5.2 Recommendations. We recommend that:
a. The plan be followed and exercised by PBEC management at all levels.
b. That this plan be modified in terms of the reality of PBEC's experience.
c. That an annual planning cycle system be installed assuring the special development of detailed short and long range plans.

EXHIBIT 24

A Plan for PBEC for the Period 1970 - 1975

Introduction. In accordance with the requirements of the Phase I proposal, a systems analysis of PBEC was conducted and a long range plan was developed. The subsequent paragraphs describe, in systems analytic terms, the allocation of resources, the processes, and expected outcomes required to pursue the PBEC program in an optimally cost-beneficial and accountable manner during Phase II over the period 1971 - 1975. Necessarily, the short term objectives and products are more clearly defined and quantified; it is understood that, in subsequent annual reiterations of the plan, additional detail will develop for long term products and objectives, based on PBEC's experience.

Specifically we define and schematically represent the following:

a. PBEC Goals

b. PBEC Objectives (Short and Long Term)

c. PBEC Products (Short and Long Term)

d. PBEC Operations, Organizations and Strategies

e. PBEC Constraints

f. PBEC Resource Requirements

The plan detailed in the following paragraphs establishes a clear linkage between resources, constraints, operations, products and the PBEC objectives and goals.

1.0 PBEC Goal. Using television, radio and other methods, change the attitudes, knowledges and behaviors of the American public, so that a preferred environmental state and a more desirable condition of life is produced.

2.0 PBEC Objectives (Short Term). By December 31, 1971 PBEC will do the following:

2.1 Operation Objective. Establish a permanent production organization by organizing and operating, in accordance with this plan (as shown in Figures 1, 1A, 1B, and 2), a cost-effective and accountable national communications system which is environmentally focused.

2.2 General Program Objective. Change the environment* from its present condition to some preferred condition. To do this, accomplish the following specific objectives:

2.2.1 Environmental Index Objectives. Establish environmental indices defining the current environmental condition as a base for contrast with a subsequent condition.

2.2.2 Environmental Behavior Objective. Define the measurable individual, group and institutional attitudes, knowledges and behaviors that must be changed to produce desired environmental change.

2.2.3 General and Specific Target Audience Objective. Use the PBEC Communication to make general and specific target audiences more aware, more informed and more active on environmental issues, so that desired environmental changes are produced. Measure the changes attitudes, knowledges and action and the effect on the environment.

Quantified Objectives

- Influence a total of 30 million Americans by TV environmental programming.
- Influence 40 million Americans by radio environmental programming.
- Influence 2 million black Americans by TV environmental programming.

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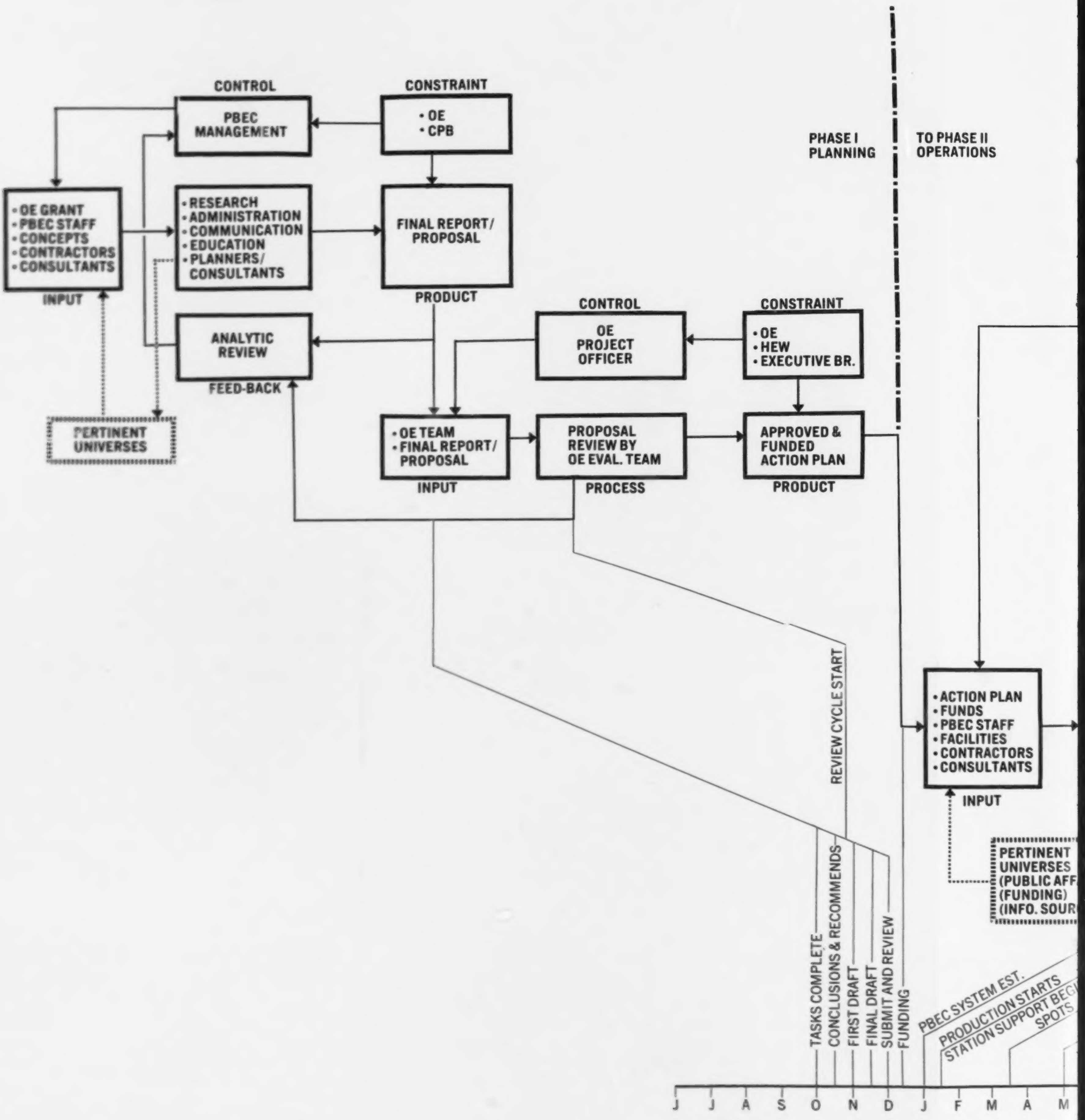
* Environment is defined as, not only the biological and physical surroundings of man, but also the cultural manifestations of man (both real and conceptual); thus, the aggregate of biologic, physical, social and cultural conditions that influence the life of an individual or a community.


CONTROL
PBEC MANAGEMENT
CONSTRAINT
• OE
• CPB
• OE GRANT
• PBEC STAFF
• CONCEPTS
• CONTRACTORS
• CONSULTANTS
INPUT
• RESEARCH
• ADMINISTRATION
• COMMUNICATION
• EDUCATION
• PLANNERS/ CONSULTANTS
FINAL REPORT/ PROPOSAL
PRODUCT
ANALYTIC REVIEW
FEED-BACK
PERTINENT UNIVERSES
CONTROL
OE PROJECT OFFICER
CONSTRAINT
• OE
• HEW
• EXECUTIVE BR.
• OE TEAM
• FINAL REPORT/ PROPOSAL
INPUT
PROPOSAL REVIEW BY OE EVAL. TEAM
PROCESS
APPROVED & FUNDED ACTION PLAN
PRODUCT
PHASE I PLANNING
TO PHASE II OPERATIONS
• ACTION PLAN
• FUNDS
• PBEC STAFF
• FACILITIES
• CONTRACTORS
• CONSULTANTS
INPUT
PERTINENT UNIVERSES
(PUBLIC AFF
(FUNDING)
(INFO. SOUR
REVIEW CYCLE START
TASKS COMPLETE
CONCLUSIONS & RECOMMENDS
FIRST DRAFT
FINAL DRAFT
SUBMIT AND REVIEW
FUNDING
PBEC SYSTEM EST.
PRODUCTION STARTS
STATION SUPPORT BEG
SPOTS
J
J
A
S
O
N
D
J
F
M
A
M

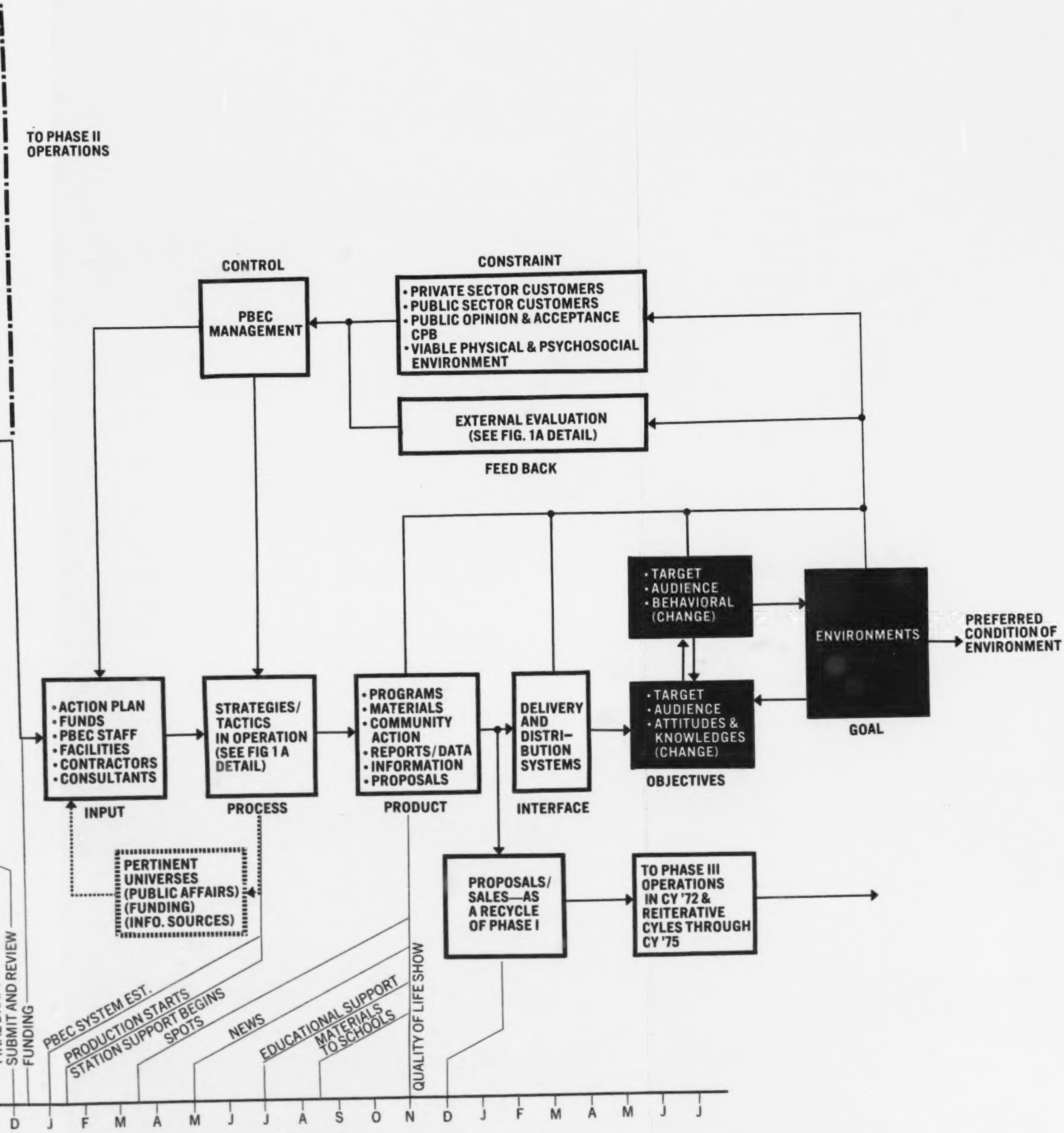

TO PHASE II OPERATIONS
CONTROL
PBEC MANAGEMENT
CONSTRAINT
• PRIVATE SECTOR CUSTOMERS
• PUBLIC SECTOR CUSTOMERS
• PUBLIC OPINION & ACCEPTANCE CPB
• VIABLE PHYSICAL & PSYCHOSOCIAL ENVIRONMENT
EXTERNAL EVALUATION (SEE FIG. 1A DETAIL)
FEED BACK
• TARGET • AUDIENCE • BEHAVIORAL (CHANGE)
ENVIRONMENTS
PREFERRED CONDITION OF ENVIRONMENT
• TARGET • AUDIENCE • ATTITUDES & KNOWLEDGES (CHANGE)
GOAL
OBJECTIVES
• ACTION PLAN
• FUNDS
• PBEC STAFF
• FACILITIES
• CONTRACTORS
• CONSULTANTS
INPUT
STRATEGIES/ TACTICS IN OPERATION (SEE FIG 1 A DETAIL)
PROCESS
• PROGRAMS
• MATERIALS
• COMMUNITY ACTION
• REPORTS/DATA
• INFORMATION
• PROPOSALS
PRODUCT
DELIVERY AND DISTRI-BUTION SYSTEMS
INTERFACE
PERTINENT UNIVERSES (PUBLIC AFFAIRS) (FUNDING) (INFO. SOURCES)
PROPOSALS/ SALES—AS A RECYCLE OF PHASE I
TO PHASE III OPERATIONS IN CY '72 & REITERATIVE CYLES THROUGH CY '75
SUBMIT AND REVIEW
FUNDING
PBEC SYSTEM EST.
PRODUCTION STARTS
STATION SUPPORT BEGINS
SPOTS
NEWS
EDUCATIONAL SUPPORT
MATERIALS TO SCHOOLS
QUALITY OF LIFE SHOW
D J F M A M J J A S O N D J F M A M J J

FIG 1.

SYSTEMS SCHEMATIC FOR PHASES I & II

(showing current planning effort in phase I and proposed operations in phase II.)

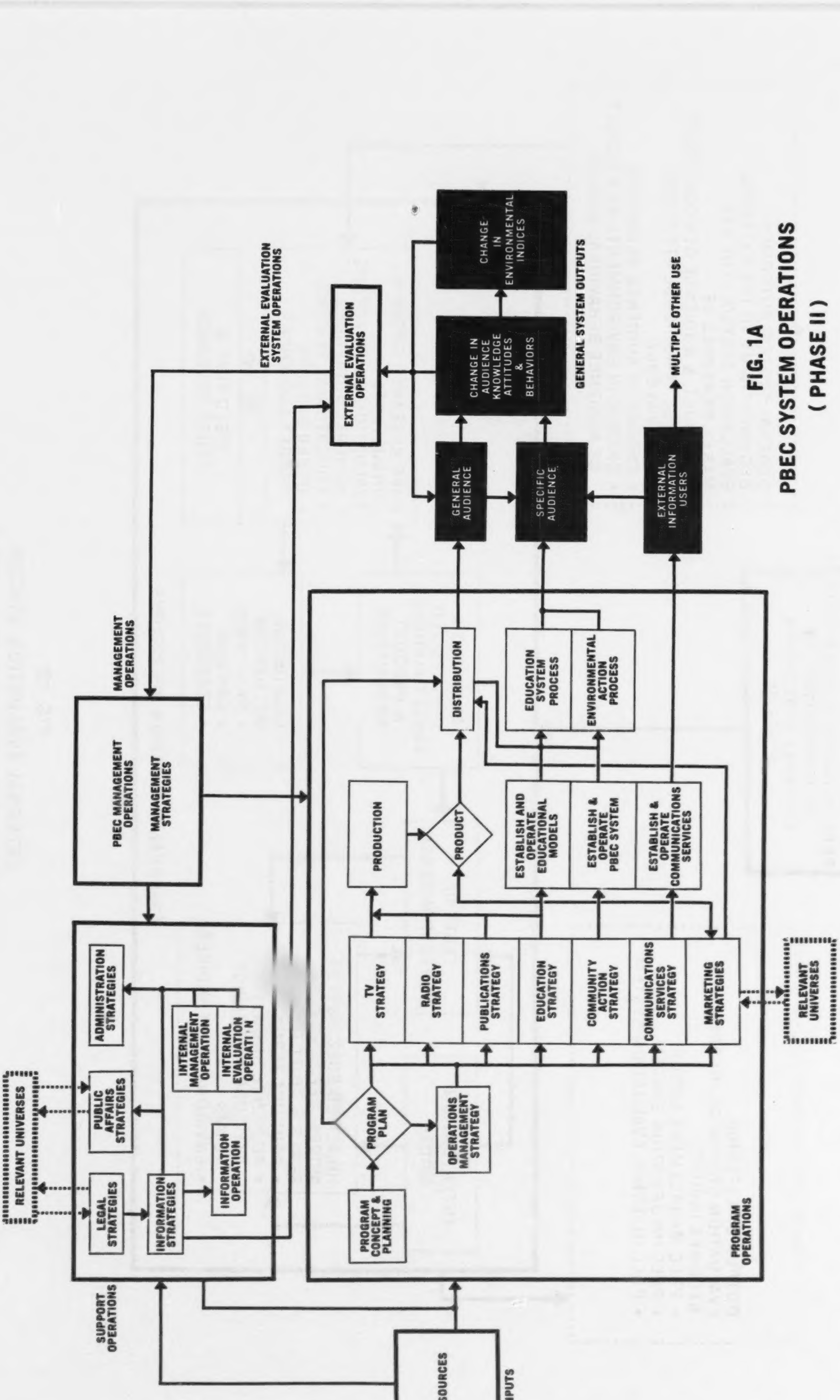

INPUTS
RESOURCES
SUPPORT OPERATIONS
RELEVANT UNIVERSES
LEGAL STRATEGIES
PUBLIC AFFAIRS STRATEGIES
ADMINISTRATION STRATEGIES
INFORMATION STRATEGIES
INFORMATION OPERATION
INTERNAL MANAGEMENT OPERATION
INTERNAL EVALUATION OPERATION
MANAGEMENT OPERATIONS
PBEC MANAGEMENT OPERATIONS
MANAGEMENT STRATEGIES
EXTERNAL EVALUATION SYSTEM OPERATIONS
EXTERNAL EVALUATION OPERATIONS
PROGRAM OPERATIONS
PROGRAM CONCEPT & PLANNING
PROGRAM PLAN
OPERATIONS MANAGEMENT STRATEGY
TV STRATEGY
RADIO STRATEGY
PUBLICATIONS STRATEGY
EDUCATION STRATEGY
COMMUNITY ACTION STRATEGY
COMMUNICATIONS SERVICES STRATEGY
MARKETING STRATEGIES
RELEVANT UNIVERSES
PRODUCTION
PRODUCT
ESTABLISH AND OPERATE EDUCATIONAL MODELS
ESTABLISH & OPERATE PBEC SYSTEM
ESTABLISH & OPERATE COMMUNICATIONS SERVICES
DISTRIBUTION
EDUCATION SYSTEM PROCESS
ENVIRONMENTAL ACTION PROCESS
GENERAL AUDIENCE
SPECIFIC AUDIENCE
EXTERNAL INFORMATION USERS
CHANGE IN AUDIENCE KNOWLEDGE ATTITUDES & BEHAVIORS
CHANGE IN ENVIRONMENTAL INDICES
GENERAL SYSTEM OUTPUTS
MULTIPLE OTHER USE

FIG. 1A
PBEC SYSTEM OPERATIONS
(PHASE II)

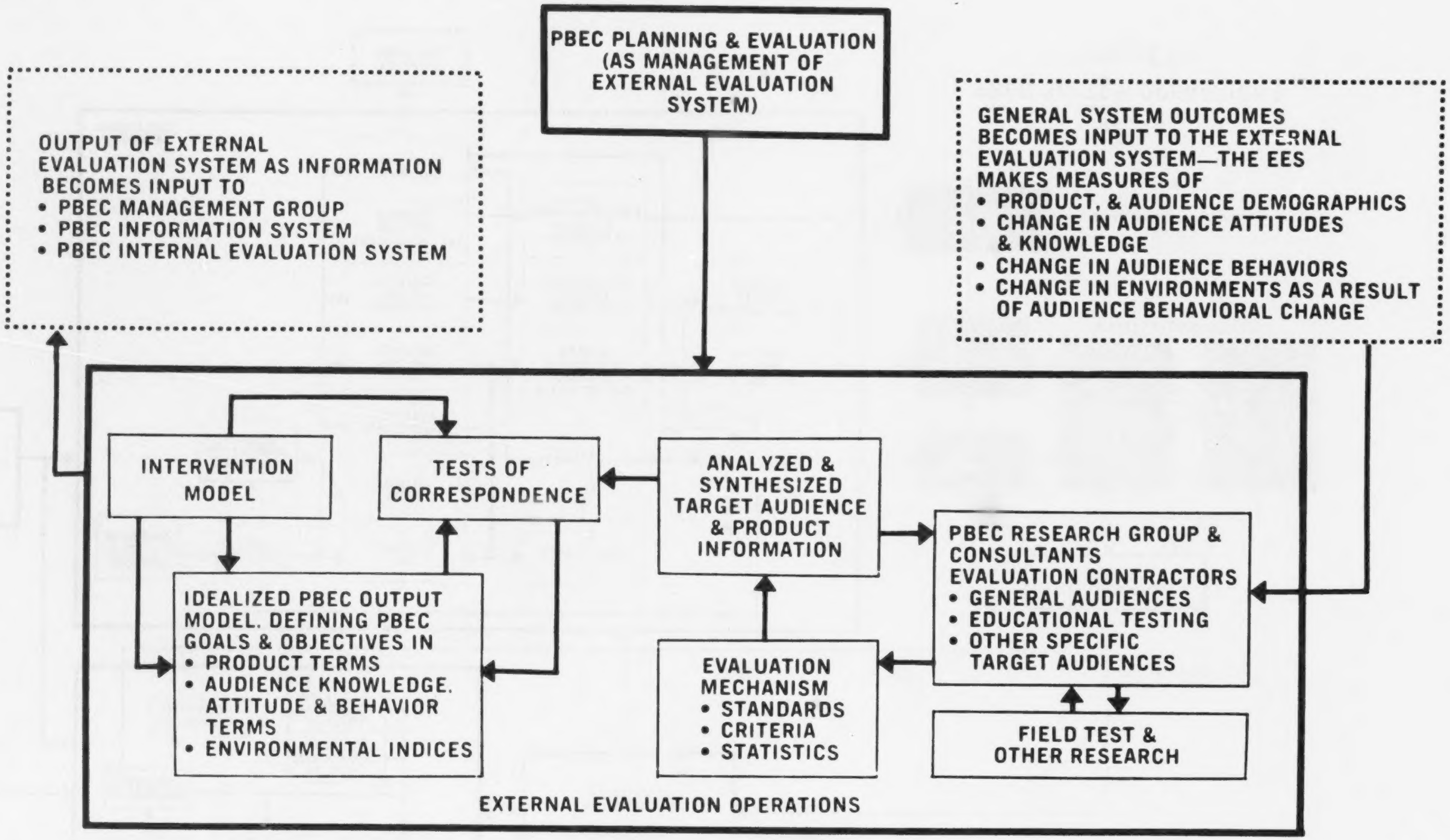

PBEC PLANNING & EVALUATION (AS MANAGEMENT OF EXTERNAL EVALUATION SYSTEM)
OUTPUT OF EXTERNAL EVALUATION SYSTEM AS INFORMATION BECOMES INPUT TO
• PBEC MANAGEMENT GROUP
• PBEC INFORMATION SYSTEM
• PBEC INTERNAL EVALUATION SYSTEM
GENERAL SYSTEM OUTCOMES BECOMES INPUT TO THE EXTERNAL EVALUATION SYSTEM—THE EES MAKES MEASURES OF
• PRODUCT, & AUDIENCE DEMOGRAPHICS
• CHANGE IN AUDIENCE ATTITUDES & KNOWLEDGE
• CHANGE IN AUDIENCE BEHAVIORS
• CHANGE IN ENVIRONMENTS AS A RESULT OF AUDIENCE BEHAVIORAL CHANGE
INTERVENTION MODEL
TESTS OF CORRESPONDENCE
ANALYZED & SYNTHESIZED TARGET AUDIENCE & PRODUCT INFORMATION
PBEC RESEARCH GROUP & CONSULTANTS EVALUATION CONTRACTORS
• GENERAL AUDIENCES
• EDUCATIONAL TESTING
• OTHER SPECIFIC TARGET AUDIENCES
IDEALIZED PBEC OUTPUT MODEL. DEFINING PBEC GOALS & OBJECTIVES IN
• PRODUCT TERMS
• AUDIENCE KNOWLEDGE. ATTITUDE & BEHAVIOR TERMS
• ENVIRONMENTAL INDICES
EVALUATION MECHANISM
• STANDARDS
• CRITERIA
• STATISTICS
FIELD TEST & OTHER RESEARCH
EXTERNAL EVALUATION OPERATIONS

FIG. 1B
EXTERNAL EVALUATION SYSTEM
AS PROCESS, SHOWING EVALUATIVE
RELATIONSHIP TO GENERAL SYSTEM OUTCOMES
(DETAIL)

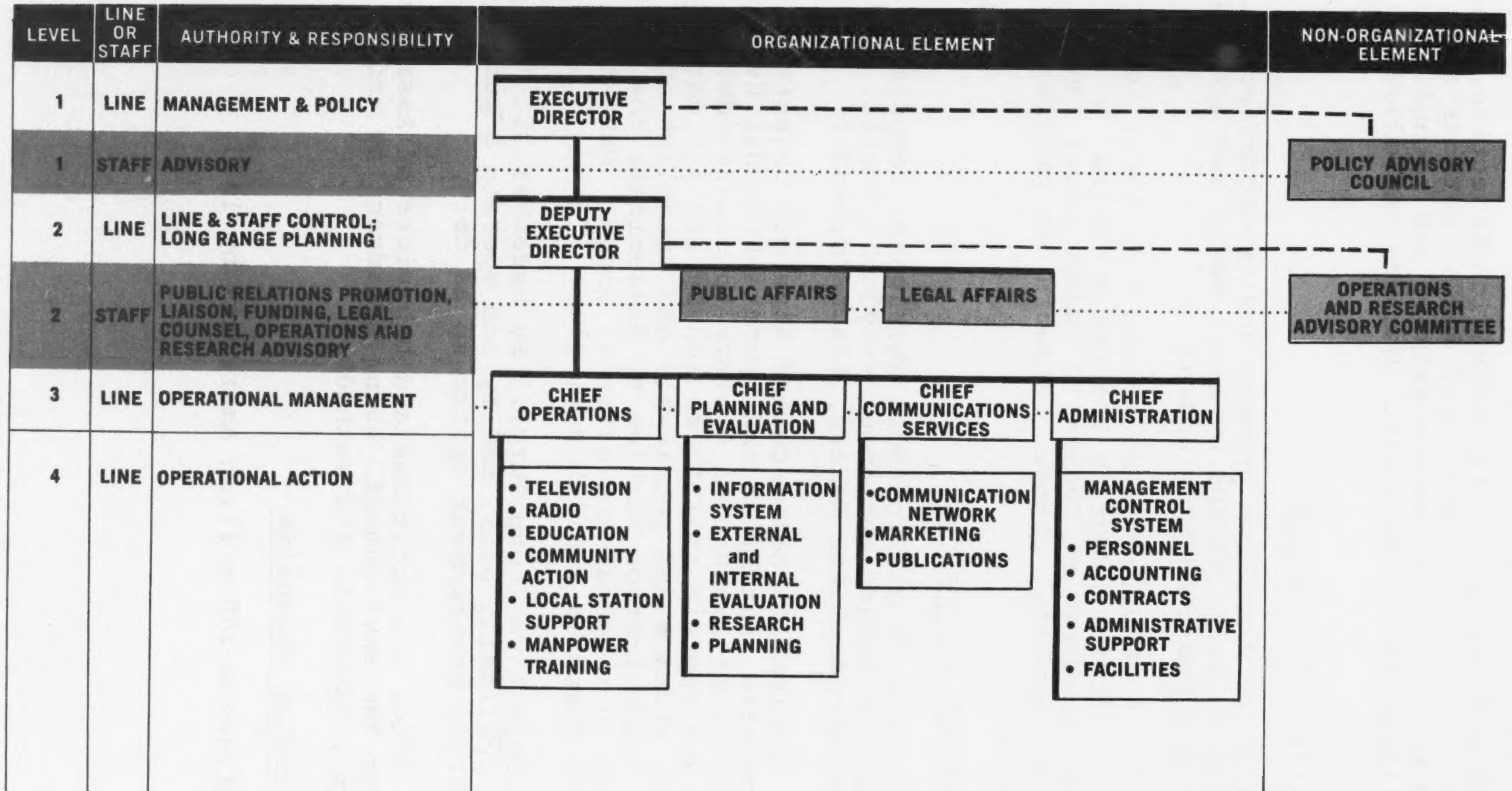

LEVEL
LINE OR STAFF
AUTHORITY & RESPONSIBILITY
ORGANIZATIONAL ELEMENT
NON-ORGANIZATIONAL ELEMENT
1
LINE
MANAGEMENT & POLICY
1
STAFF
ADVISORY
2
LINE
LINE & STAFF CONTROL; LONG RANGE PLANNING
2
STAFF
PUBLIC RELATIONS PROMOTION, LIAISON, FUNDING, LEGAL COUNSEL, OPERATIONS AND RESEARCH ADVISORY
3
LINE
OPERATIONAL MANAGEMENT
4
LINE
OPERATIONAL ACTION
EXECUTIVE DIRECTOR
POLICY ADVISORY COUNCIL
DEPUTY EXECUTIVE DIRECTOR
PUBLIC AFFAIRS
LEGAL AFFAIRS
OPERATIONS AND RESEARCH ADVISORY COMMITTEE
CHIEF OPERATIONS
CHIEF PLANNING AND EVALUATION
CHIEF COMMUNICATIONS SERVICES
CHIEF ADMINISTRATION
• TELEVISION
• RADIO
• EDUCATION
• COMMUNITY ACTION
• LOCAL STATION SUPPORT
• MANPOWER TRAINING
• INFORMATION SYSTEM
• EXTERNAL and INTERNAL EVALUATION
• RESEARCH
• PLANNING
•COMMUNICATION NETWORK
•MARKETING
•PUBLICATIONS
MANAGEMENT CONTROL SYSTEM
• PERSONNEL
• ACCOUNTING
• CONTRACTS
• ADMINISTRATIVE SUPPORT
• FACILITIES

FIG. 2
ORGANIZATION CHART, PBEC, 1970-1971 (PROPOSED)

2.2.4 Environmental Education Objective. Use the communication System and other media, methods and supporting materials to educate primary and secondary school children environmentally. Measure the education achieved.

Quantified Objectives

- Influence 2 million primary and secondary school children using PB and by other media and methods which support PB programming.

2.2.5 Environmental Action Objective. Use environmental action programs through a Public Broadcasting Environment System to induce local and regional environmental change. Measure the programs' effectiveness.

Quantified Objectives

- Influence 10 million more Americans, comprising specific target audiences -- youth, ethnic, economic/decision makers, teachers, etc.)

2.3 Information Resource and Research Objective. Conduct research, establish and operate External Evaluation and Internal Evaluation Systems to produce data; establish and operate an Information System for data collection, storage and retrieval; and establish and operate a Communication Service to disseminate the information to internal and external users. Make the information resource available to all.

3.0 PBEC Objective (Long Term). By December 31, 1975, PBEC will cyclically plan, modify and operate a public communications environment system so as to:

3.1 Alter the attitudes and behaviors of Americans, relative to the environment, using broadcasting and other media, materials and methods.

Quantified Objective

- Influence 200 million Americans by 1975.

3.2 Produce significant preferred changes in the environment using broadcasting and other media.

3.3 Innovate other ways to produce desired environmental change.

3.4 Maximize defined environmental benefits relative to the program cost.

4.0 PBEC Products.

4.1 PBEC Products (Short Term). In CY 1971, PBEC will produce products designed by format, content, and presentation time and presentation frequency to attain the objectives set forth above. The products will include:

a. TV and Radio news (see Appendices V, VI A.2, VII and VIII A; supports Objective 2.2.3)

b. TV and Radio spots (see Appendices V, VI A.2, VII and VIII A; supports Objective 2.2.3)

c. TV "Quality of Life" Show, 39-week, one-hour program (see Appendix V, VI A.2, and VII; supports Objectives 2.23 and 2.24)

d. Supporting Education Media and Materials (see Appendix X; supports Objective 2.2.4)

e. Environmental Action Program (see Appendix XI; supports Objective 2.2.5)

f. Reports and Information (see Appendices I, II, IV, VI A.2 and VIII A; supports Objectives 2.2.1 through 2.2.5)

4.2 PBEC Product (Long Term). In CY 1972-1975, PBEC will produce other modified products designed to attain, more cost-effectively, the long term objectives. These may include TV special programs, TV and Radio programming derived from effective and popular segments of the 1971 "Quality of Life" Show, cooperative efforts with public and commercial TV and radio, newspapers, magazines, recording resources and other mass media (see Appendices VII, VIII A, IX, X and XI; supports Objectives 2.2.3 through 2.2.5)

5.0 PBEC Stragegies. The following strategy statements are set forth in terms of staff and line authorities as Figure 2. The strategies listed are graphically shown in Figure 1A.

5.1 Management Stragegies. (Supports Objective 2.1; see Appendix VI A.e, VI B and VI C)

a. General Management/Policy Strategy. This emphasizes approaches to management and policy processes.

b. Line and Staff Control Strategy. This emphasizes systems approach to control functions, (per Figure 1B) utilizing outputs from External Evaluation System and Internal Evaluation Systems to modify resource allocation and overall process in the most-cost beneficial manner.

c. Long Range Planning Strategy. This emphasizes cyclic planning functions to improve steadily the effectiveness of PBEC Operations and insure continuity of action. (See Figure 3 for schematic; this strategy is embodied in this Appendix.)

d. Constraint Avoidance Strategies. This specifies what action can be taken by PBEC management to minimize inhibitory constraints tending to prevent PBEC from achieving its objectives, while simultaneously maximizing positive constraints to improve cost-effectiveness.

e. Accountability Strategy. This specifies what management actions must be taken to assure accountability for PBEC performance relative to public trust.

5.2 Public Affairs Strategies. (Supports Objective 2.1 - 2.3)

a. Public Relations and Promotion. This specifies the actions required to establish and maintain an accurate and persuasive stance before product users and the general public. (see Appendix VIII B)

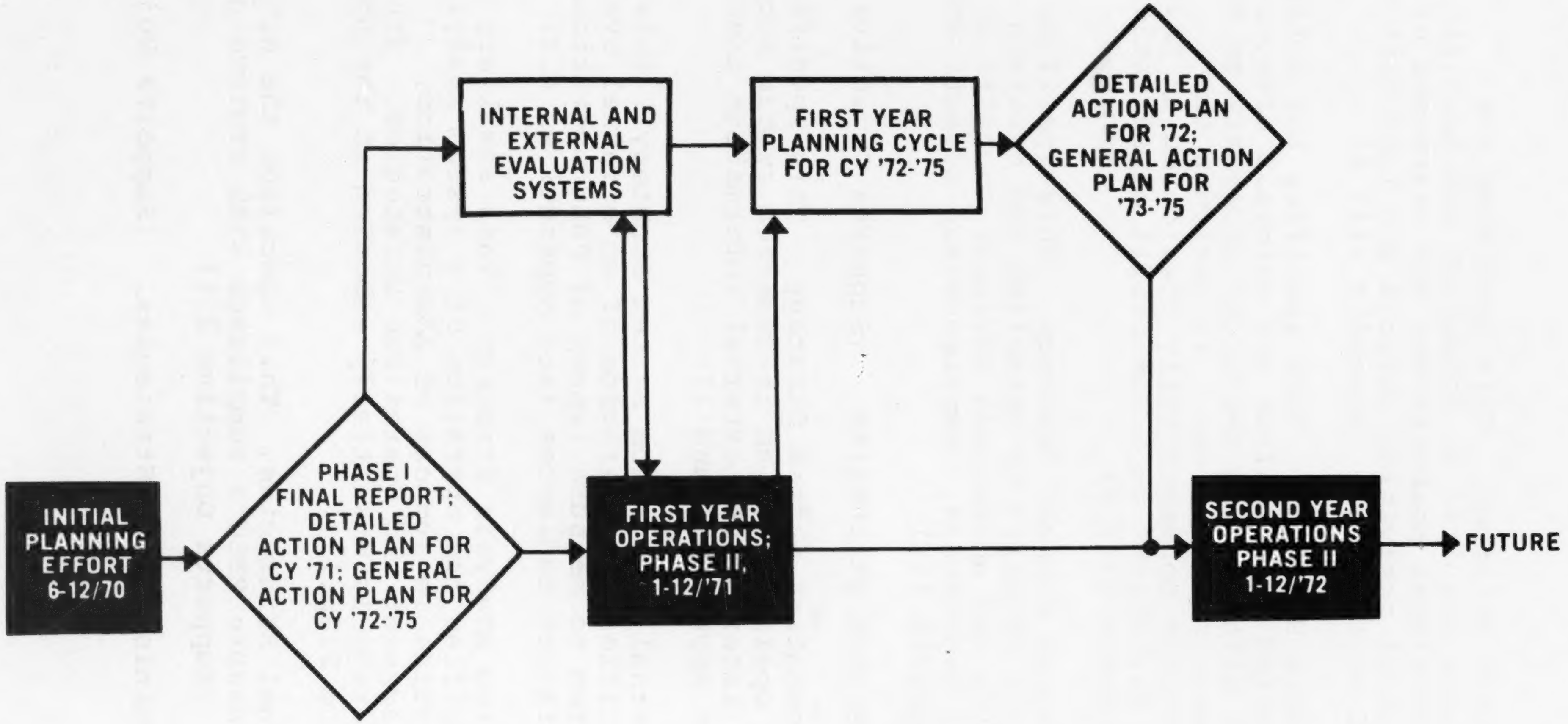

INITIAL PLANNING EFFORT 6-12/70
PHASE I FINAL REPORT: DETAILED ACTION PLAN FOR CY '71; GENERAL ACTION PLAN FOR CY '72-'75
INTERNAL AND EXTERNAL EVALUATION SYSTEMS
FIRST YEAR OPERATIONS; PHASE II, 1-12/'71
FIRST YEAR PLANNING CYCLE FOR CY '72-'75
DETAILED ACTION PLAN FOR '72; GENERAL ACTION PLAN FOR '73-'75
SECOND YEAR OPERATIONS PHASE II 1-12/'72
FUTURE

FIG. 3

LONG RANGE PLANNING STRATEGY SCHEMATIC

b. Liaison Strategy. This specifies the actions required to establish and maintain professional associations and awareness of national activities related and important to PBEC objectives. (Appendix VIII B)

c. Funding Strategy. This specifies the actions required to establish and maintain effective contact with funding resources necessary to PBEC objecrive attainment. It includes the functions conventionally considered as "sales and marketing" in a for-profit organization. (Appendix VIII B)

d. Advisory Council Strategy. This specifies the action required to establish and maintain policy and operations advisory councils of the best reputation, competence and effectiveness. (Appendix III)

5.3 Research Strategies. (Supports Objective 2.3)

a. Information System Strategy. This specifies the operation of an information system supporting internal and external information users (see Appendix I and II)

b. External Evaluation System Strategy. This specifies the operation of an external evaluation system to measure impact of PBEC operations on target audiences (see Appendix VI A.2)

c. System Analysis Strategy. This auxiliary specifies the operation of a system analysis function in support of Administration, Management and Operations Strategies. (This strategy is essentially embodied in the Long Range Plan.)

5.4 Legal Strategies. This specifies the action required to assure PBEC's compliance with statute and regulation. (Supports Objective 2.1)

5.5 Administration Strategies. (Supports Objective 2.1)

a. Management System Strategy. This specifies the operation of an internal management system to control information about personnel, budgets, accounting, purchasing, facilities and other housekeeping functions. (see Appendix VI A.3; B and C)

b. Internal Evaluation Strategy. This specifies the operation of a system to measure and report cost effectiveness of PBEC operations. (see Appendix VI A.3)

5.6 Operation Strategies. (Supports Objective 2.2)

a. Operations Management Strategy. This specifies how the Chief of Operations will perform and control program conceptualization and planning, product development, production and distribution.

b. TV Strategy. This specifies how TV will be employed to attain PBEC Objectives. (see Appendixes VII, X and XI)

c. Radio Strategy. This specifies how radio will be employed to achieve PBEC Objectives. (see Appendixes VII, X and XI)

d. Publications. This specifies how printed and other media will be employed to attain PBEC Objectives. (see Appendix VIII A)

e. Education Strategy. This specifies how public broadcast media, other media and auxiliary materials will operate to attain the PBEC Objectives. (see Appendix X)

f. Environmental Program Strategy. This specifies how public broadcast environment action programs operate to attain PBEC goals. (see Appendix XI)

g. Marketing Strategy. This specifies how elements of TV, Radio, Publication and Education operations can be used in novel ways to defray costs. (see Appendix VII).

h. Communications Services Strategy. This strategy specifies the operation of an information network serving PBEC's data users. (see Appendix VIII)

6.0 Constraint Analysis. This analysis has defined the anticipated forces acting on the system tending to enhance attainment of objectives. Principal forces are: viewer/listener audience reaction; public response; critical reaction by press and experts; legislative/executive branch reaction; and customer reaction in the private and public sectors.

7.0 Resource Analysis. Resource analysis, based upon recommendations associated with the various tasks, are as set forth in sections of the PBEC proposal concerning budget, personnel, facilities, etc. The resources required are specified by line-item associated with each objective area; accordingly it supports all objectives.

8.0 Feedback. The feedback system is the External Evaluation System. See Appropriate Research and Administration strategies and Appendix VI. This effort supports all objectives.

2. EXTERNAL EVALUATION

1.0 Purpose. This report summarizes PBEC's objectives, methods and accomplishments of the planning of an External Evaluation System.

2.0 Objectives.

2.1 General Objective. Analyze, plan and develop during Phase I an External Evaluation System (EES), which, when operated during PBEC's Phase II, will measure the extent to which PBEC operations actually alter attitudes and behaviors of target audience so as to benefit the environment.

2.2 Specific Objectives

2.2.1 To develop a conceptual and analytical model for evaluating the impact of specific PBEC media products on target audiences. The model is to be grounded in quantifiable terms which reflect and measure the "real-life" involvement and accomplishments of PBEC in the total environmental picture. The resultant EES, in operation, will be a procedure for determining quantitatively the extent to which the products of PBEC accomplish the stated, specific objectives associated with each product. (A product is defined as a cohesive grouping of presentation opportunities within a media class, e.g., TV, radio, print.)

2.2.2 Develop a conceptual and analytic model which when in operation has strong feedback function. The feedback will provide information to PBEC operations allowing progressive alteration in PBEC products to effect desired audience response more cost-effectively.

2.2.3 Define operational interfaces with the PBEC Internal Evaluation System, the PBEC Program Development Group, the PBEC Education Group, the PBEC Communications Service and the PBEC Information System and a management interface with the PBEC Administration and Management Group.

2.2.4 Establish relationships with organizations, institutions and persons useful in the planning and operations of the EES.

3.0 Methods

3.1 General. The approach was straightforward, using standard systems analytic planning techniques to define EES goals, objectives, and alternative strategies. General input-output flow schematics were employed for the overall EES configuration (as it relates to PBEC operations) and the "top-down" systems method was used for the EES model of measurement.

3.2 Assumptions. The following standard media assumptions were made during the design of the EES model:

a. The population is divided into market segments (target audiences). People in each segment have their own sales potential and media habits. Here sales potential is defined as attitudes and behaviors towards environmental objectives and the proclivity of the segment to be influenced by a product. A media schedule consists of insertions in media options. An insertion brings about exposures to people in one or more market segments. The repetitions serve to increase the exposure level of individuals in the segment. People are subject to forgetting and so the retained exposure level decays with time in the absence of new exposures. The response of individuals in a market segment increases with exposure level, but with diminishing returns at high levels.

b. The conceptual framework of the evaluation model is grounded on the assumption that explicit statements of PBEC's objectives can be given and related to each PBEC product. A product is directed towards a specified target audience(s) whose reaction to the exposure(s) of the product can be measured by statistical or social (behavioral) indicators. A set of products can have the same objective with separate and/or inter-related indicators for filtering the effectiveness of each product.

4.0 Accomplishments

4.1 Design of EES as a subsystem of PBEC System. Figure 1 illustrates the current configuration of the EES as a subsystem of the total PBEC System.

4.2 Design of the EES elements as a process. Figure 2 illustrates the internal design of the EES as an evaluation/feedback mechanism.

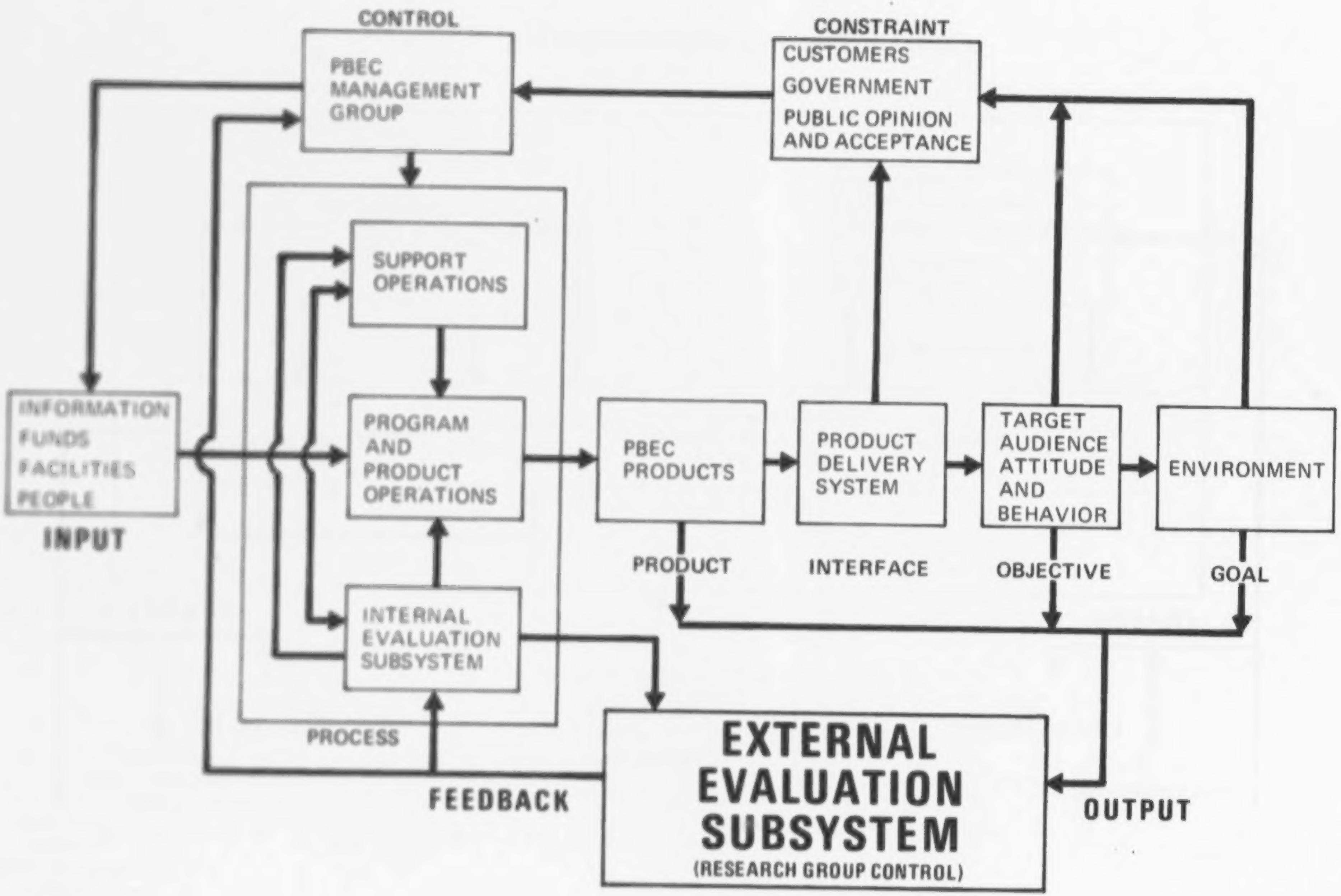

CONTROL
PBEC MANAGEMENT GROUP
CONSTRAINT
CUSTOMERS
GOVERNMENT
PUBLIC OPINION AND ACCEPTANCE
INFORMATION
FUNDS
FACILITIES
PEOPLE
INPUT
SUPPORT OPERATIONS
PROGRAM AND PRODUCT OPERATIONS
INTERNAL EVALUATION SUBSYSTEM
PROCESS
PBEC PRODUCTS
PRODUCT DELIVERY SYSTEM
TARGET AUDIENCE ATTITUDE AND BEHAVIOR
ENVIRONMENT
PRODUCT
INTERFACE
OBJECTIVE
GOAL
FEEDBACK
EXTERNAL EVALUATION SUBSYSTEM
(RESEARCH GROUP CONTROL)
OUTPUT

FIG. 1 THE ROLE OF THE EES IN THE PBEC SYSTEM

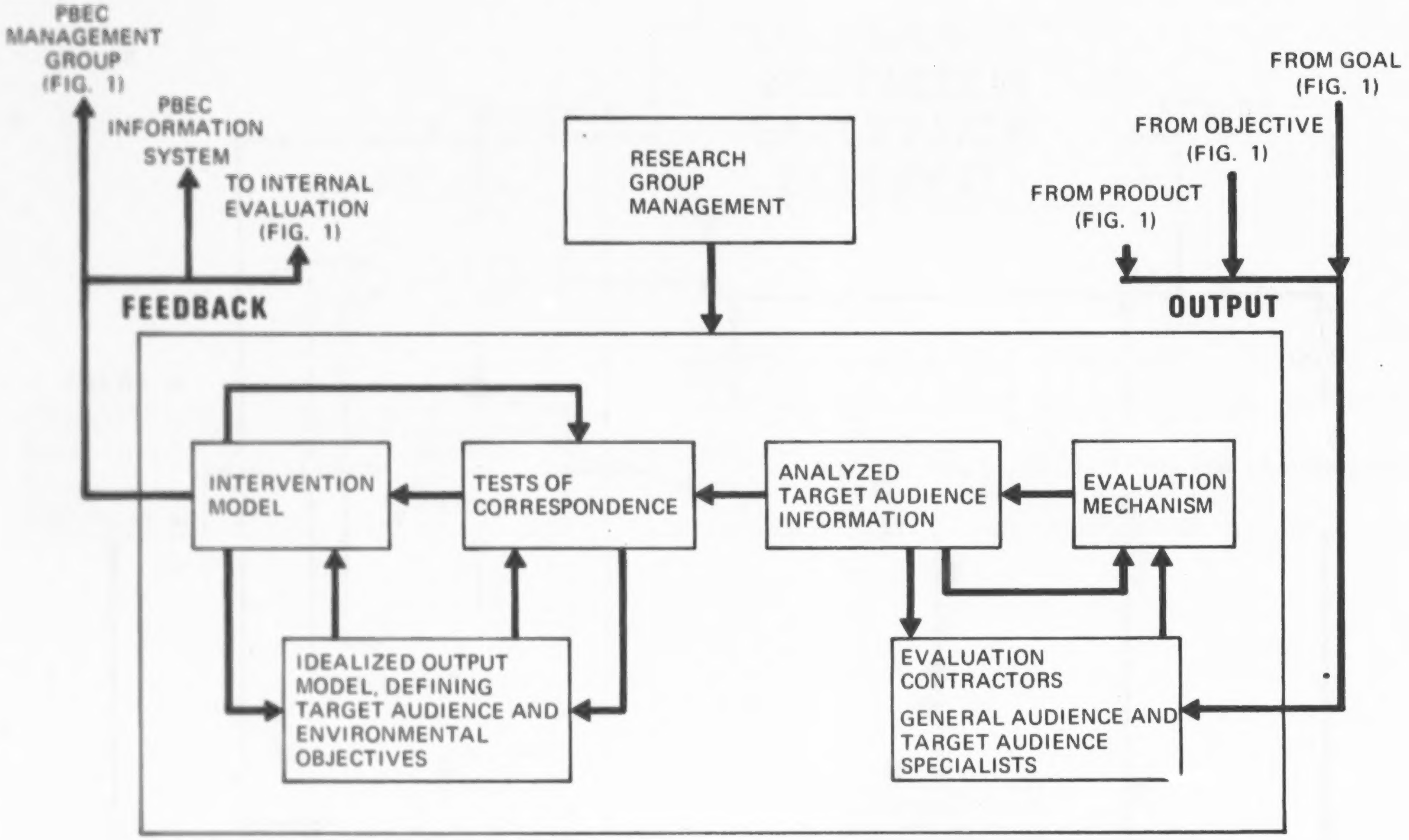

PBEC
MANAGEMENT
GROUP
(FIG. 1)
PBEC
INFORMATION
SYSTEM
TO INTERNAL
EVALUATION
(FIG. 1)
FEEDBACK
RESEARCH
GROUP
MANAGEMENT
FROM GOAL
(FIG. 1)
FROM OBJECTIVE
(FIG. 1)
FROM PRODUCT
(FIG. 1)
OUTPUT
INTERVENTION
MODEL
TESTS OF
CORRESPONDENCE
ANALYZED
TARGET AUDIENCE
INFORMATION
EVALUATION
MECHANISM
IDEALIZED OUTPUT
MODEL, DEFINING
TARGET AUDIENCE AND
ENVIRONMENTAL
OBJECTIVES
EVALUATION
CONTRACTORS
GENERAL AUDIENCE AND
TARGET AUDIENCE
SPECIALISTS

FIG. 2 EXTERNAL EVALUATION SUBSYSTEM

4.3 Design of the EES as an evaluation mechanism. The approach to be used, termed "top-down" systems analysis, will carry us from the highest, most verbal statements of PBEC goals and objectives to the translation of these objectives into specific products and media schedules. The process can be best explained by recourse to Figure 3. There, the major PBEC goal -- to determine whether or not the resources of the Corporation for Public Broadcasting, coupled with other media and social activities, can exert positive, practical changes upon the total environment -- is subdivided into differentiated PBEC objectives. In turn, these objectives are transformed into specific environmental objectives which are directed towards designated target audiences. The accomplishment of the environmental objective by influencing the target audience requires a specially designed PBEC product or set of products. Associated with each product is a set of indicators which measure the ability of the product to influence the target audience and the resultant changes of the target audience towards the specified environmental objective. These indicators are measured by predetermined instruments (e.g. surveys, action items) and then evaluated to determine the significance of the complete activity in terms of the stated environmental objectives. Hence, in a general sense, we can define a PBEC product as the flow of activities from a PBEC objective through a specific production and its evaluation. Such a product is illustrated by the stream of functions highlighted in Figure 3.

Each product implies a dichotomy of effort. The PBEC staff must accomplish the functions as indicated in Figure 3, while the EES staff accomplish the remaining functions, in conjunction with survey and other specialists. Both groups must interact in order to define the proper target audiences and indicators, and to agree on the measuring and evaluation process.

4.4 Design of the EES Model

4.4.1 General Discussion. Expanding on the above, our approach to structuring the EES can be put forth as follows. The EES is basically a process which encompasses the objective-setting, product development and goal-objective achievement of the PBEC system. Due to this diversity of interaction, we find that no single analytical or descriptive model can be

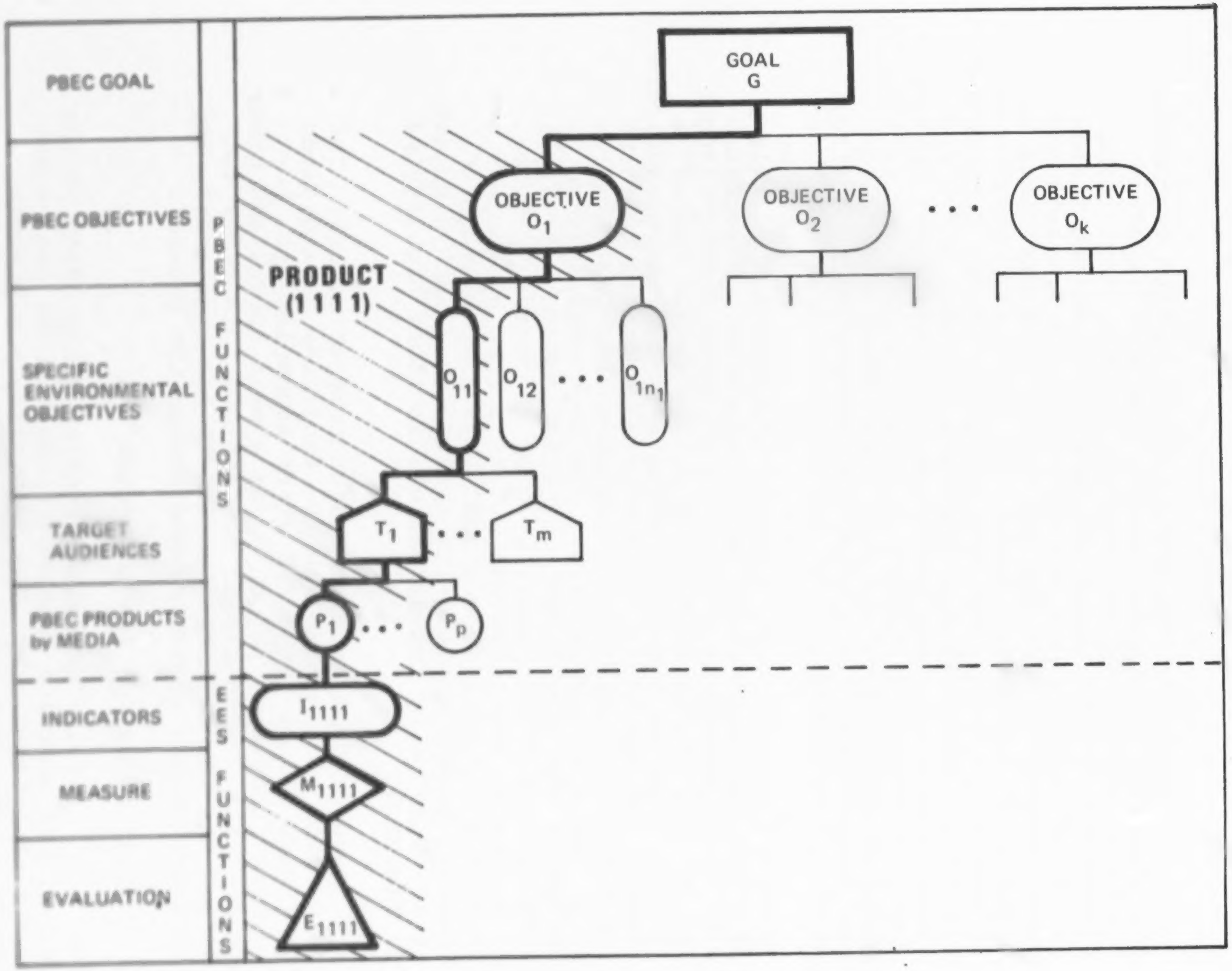

PBEC GOAL
PBEC OBJECTIVES
SPECIFIC ENVIRONMENTAL OBJECTIVES
TARGET AUDIENCES
PBEC PRODUCTS by MEDIA
INDICATORS
MEASURE
EVALUATION
PBEC FUNCTIONS
EES FUNCTIONS
GOAL G
OBJECTIVE O_1
OBJECTIVE O_2
OBJECTIVE O_k
PRODUCT (1111)
O_{11}
O_{12}
O_{1n_1}
T_1
T_m
P_1
P_p
I_{1111}
M_{1111}
E_{1111}

FIG. 3 PBEC TOP-DOWN ANALYSIS

formulated as the model for the PBEC EES. We shall see that in order to accomplish the objectives of the EES, we cannot ignore the full range of statistical, intuitive, preference/utility measure, behavioral and mathematical techniques and tricks of the trade. In order to be effective, an operative EES requires certain initial assumptions and accomplishments. Most of these will be discussed in succeeding material and appendices of this section, or in related PBEC task descriptions.

PBEC products -- which can be considered as the tangible evidence of PBEC's activities -- must have imbedded within them explicit statements relating the products' objectives to target audiences and the scheduled exposure of the audiences to the products via specified media as noted in Figure 3. Thus, we assume that prior to the development of a PBEC product there is agreement and statements on the range and definition of the target audiences, PBEC objectives and media to be employed.

The EES assumes that a set of "objective-accomplishing" indicators can be imposed on each product and it is the function of the EES to state, define and measure these indicators. As indicators imply measurement and deviation from a specific point, baseline measurements of these indicators is required. That is, for each product we must establish the initial (time zero) status of its related indicators. We have identified four classes of indicators -- contact, intellectual, behavior and environment (Exhibit 25. "Measuring the Effects of PBEC Programming"). Some of these can be represented by hard numbers (the number of write-ins), while others are soft (the change in attitudes towards an invironmental question). For each indicator we will define an unambiguous process for its measurement.

The evaluation process, i.e. the process which measures the effect of a PBEC product on a target audience, will require extensive use of surveys and a quantitative/qualitative procedure for comparing a vector of baseline (time zero indicators) to the current (post product presentation) vector of indicator values. Here preference-utility measure approaches will probably be used. The results of these valuations will be fed back to other PBEC components so that PBEC management can more rationally interpret the ability of a product to accomplish its stated objectives.

4.4.2 An EES Formal Model Description. From a formal point of view, we may describe in a concise notational form the structure of the EES. Although it is not an operational description, the notation forms, in a sense, a framework which encompasses the objectives of the EES.

T_i :	A target audience
M_j :	A specified media
M_{jt} :	A media schedule over time
P_d :	A PBEC product
$P_d(M_{jt})$:	A PBEC product assigned to a media schedule
I_{pi} :	A set of indicators for a given product p and target audience i
M_p :	The measuring process for a product p
$M(I_p)$:	The measuring process for the indicators of product p
E_p :	The evaluation function of product p
$E_p[M(I_p),P_d(M_{jt}),T_i]$:	The form of the evaluation vector
$\bar{I}_{pi}$:	Baseline values of indicators for product p and target audience i
$\bar{E}_p[\bar{I}_{pi}]$:	The form of the baseline vector for product p and target audience i
$E_p-\bar{E}_p$:	Evaluative process which measures effect of $P_d(M_{jt})$ on target audience i

The accomplishment of the final evaluative process $E_p - \bar{E}_p$ will take on many forms (See Exhibit 28 "Possible PBEC Objective-Oriented Products"). We next illustrate the process with an example.

4.4.3 Illustrative Application of the EES. A statement of a sample PBEC objective oriented product is boxed in below. The statement proceeds from high-level objectives through the process described in Figure 3.

PBEC OBJECTIVE

To develop awareness and concern of Quality of Life issues via PBEC preshow spots.

ENVIRONMENTAL OBJECTIVE

To identify an action program, i.e. PBEC, directed towards improving the Quality of Life.

TARGET AUDIENCES

Total population.

PBEC ACTIVITIES AND PRODUCTS

Spot TV and radio announcements, posters on transit and other locations, statement of PBEC aims for distribution, Quality of Life Q buttons, PBEC symbol and logo.

INDICATORS AND MEASURES

TV and radio announcements ask for write-in to obtain Q button (use of different department numbers to sort out media - similarly with posters). PBEC statement mailings. Set up of initial mailing list. Survey of PTV, CTV, PR and CR on number of times spots were used.

EVALUATION

Survey to determine PBEC identification with Quality of Life, logo and Q button.

From an operational point of view, the achievement of these objectives will result in the following:

Members of the intended audience will be able to:

1. Re-state or paraphrase the key propositions or arguments included in the spot announcements,

2. Identify the scheduled local air times for the Quality of Life series,

Members of the target audience will:

3. Write in for "Q" buttons,

4. Wear "Q" buttons,

5. Express an intention to watch Quality of Life series,

6. Watch the first program in the series,

The audience will be exposed to PBEC TV and radio treatments:

60 second film spots aired on PTV and/or Com. TV

60 second spots aired on PR and/or Com. Radio

The indicator measures are:

1. Proportion of total audience able to re-state or paraphrase propositions or arguments in the spot announcements

2. Proportion of total audience able to specify correctly local air times for Quality of Life series

3. Number of persons writing in for "Q" buttons

4. Number of persons wearing "Q" buttons

5. Proportion of total audience expressing intention to audit

6. Proportion of persons actually watching first program

The design of the evaluation requires the evaluation team to draw a stratified random sample of potential viewers -- stratified by those socio-economic demographic dimensions used in specifying PBEC target audiences.

Respondents in this sample will be telephone surveyed prior to release of the spots, to ascertain dispositions toward the propositions and arguments in the spot message (indicator 1); at two subsequent times, the same group (or a matched group) will be surveyed again -- once after a week of spot dissemination, and, again, after one month. During these last two surveys, post-measures of disposition will be gathered (indicator 1), as well as data on ability to name local air times (indicator 2) and intention to view series (indicator 5).

In addition to stratification by socio-economic dimensions, the audience will also be characterized by degree of exposure to the treatments; logs of local outlets will be analyzed to classify the saturation in a given market as high, moderate or low. Data will be gathered and analyzed within the table on the following page.

		Indicator #1	Indicator #1,2,5	Indicator #1,2,5	Change in Indicator #1	Change in Indicator #2	Change in Indicator #3
High	Stratum 1						
	Stratum 2						
	Stratum 3						
	Stratum n						
Moderate	Stratum 1						
	Stratum 2						
	Stratum 3						
	Stratum n						
Low	Stratum 1						
	Stratum 2						
	Stratum 3						
	Stratum n						

The same stratification, by socio-economic and treatment variables, will be used to collect and analyze data on Indicators 3, 4 and 6, but on a "one-shot" basis. Thus the proportion writing for buttons will be analyzed (respondents will indicate age on request), the number of persons wearing buttons will be collected by field observers in public places (with socio-economic data field-coded by observer) and the number of persons actually viewing the first installment will be collected by telephone survey, using the same sampling plan as used in the earlier surveys.

This set of articulated survey activities, therefore will assess:

- the degree of contact
- the impact of the treatment on factual knowledge
- the impact of the treatment on audience practices
- and the relative effectiveness of various combinations of treatment and socio-economic variables in producing all these effects.

4.4.4 Media Models - A Survey. In Exhibit 26 we review the status of media models as they pertain to PBEC. There we note that the analytical, simulation and other technical approaches to media problems have been directed mainly towards the problem of media selection, not evaluation of media impact. As the former aspect will not, in general, be of major concern to PBEC, the specific use of these models is limited. However, we do feel that the discipline imposed by attempting to imbed the development of major PBEC products within a linear programming format would be most beneficial. This class of models requires the planners to state specific objectives, including budgetary and facility usage, and to look at the production of products as an integrated set of activities. Such a desciplined approach would enhance the ability of the EES to capture specific objectives and to systematize the analysis of PBEC products. Thus, we propose for Phase II that selected critical products be viewed and developed within this type of model framework.

4.5 Characterization of Target Audiences and Control Groups

4.5.1 Target Audiences. The range of PBEC target audiences can be described generally by the following classifications: primary school children, secondary school children, teachers and parents of the children, middle America, black and Chicano minorities, opinion leaders, and youth (15-25 years of age).In many instances the target audiences must be further refined. We show in Tables I and II the possible extent of target audience characteristics for PTV and non-PTV exposures, respectively. We have illustrated specific target audiences by marks running down the columns.

4.5.2 Control Groups. In order to filter out the impact of PBEC activities on different target audiences, we hope to be able to define selected control groups. These groups would mirror the corresponding target groups, except for the control groups not being exposed to specified PBEC activities. For our purposes then we will attempt during Phase II to select and partition the total PBEC audience into the following control groups:

1. General Population
    a. No PTV and no PRadio broadcast in area
    b. No PTV broadcast in area
    c. PTV broadcast but no UHF TV

2. Urban/Suburban - Adult and Student
    a. No PTV broadcast in area
    b. PTV broadcast but no UHF TV

3. Rural - Adult and Student
    a. No PTV broadcast in area
    b. PTV but no UHF TV

4. Urban/ Suburban - Student

    No closed-circuit TV and PTV reception in schools

5. Rural - Student

    No closed-circuit TV and PTV reception in schools

Ideally, we would like to find both urban/suburban and rural control areas which can be isolated naturally from all PBEC activities. That is, these areas do not and will not receive any public broadcasts during the school year of the project. In addition, other PBEC media -- school syllabi, transit ads, etc. -- will not be allowed within these control areas. Given such areas, surveys would then be run for each PBEC target audience in order to establish the control baselines. These surveys would encompass the audiences' Quality of Life knowledge, awareness and actions for the PBEC baseline items. These groups would be periodically sampled and the results compared to the baselines of the PBEC exposed target audience.

Table 1: Target Audience Characteristics (PTV)

TARGET AUDIENCE CHARACTERISTICS	T_1	T_2	T_3	T_4	T_5	T_6	T_7	....
Have PTV Capability	1	1	1		1	1		
Do not have PTV Capability				1			1	
Age: < 13	1	1	1					
>13 < 25								
>25 < 40							1	
>40 < 55					1			
>55								
Male	1	1	1					
Female	1	1						
Single								
Married								
Not in any full-time school	1							
In Kindergarten		1						
In Grades 1-8			1					
In High School								
In College								
In Adult Education								
< High School Education								
High School Education								
Some College								
College Graduate					1	1		
White	1	1			1	1		
Black	1	1	1			1		
Other-Nonwhite	1	1				1		
Urban	1		1			1		
Suburban		1						
Rural								
Professional								
Clerical/Sales								
Labor								
Agriculture								
Military and Reserve				1				
Union								
Government								
Manufacturing								
Services								
Scientist								
Engineer								
Management					1			
Teacher-Elementary						1		
Teacher-High School								
Teacher-College								
< $5K								
$ 5K-$10K								
$10K-$15K								
> $15K					1			

Table II - Target Audience Characteristics (cont.)
(PRadio and Other Media)

	T_1	T_2	T_3	T_4	T_5	T_6	T_7	...
Have FM Radio in PR Area								
No PTV/PR Exposure							1	
Other Media Exposure:								
Exhibits								
Books								
Film Strips							1	
Ed. Products								
External Agency Exposure:								
School TV								
Boy Scouts								
Community Centers								
Fraternal							1	
Professional							1	
Foreign Countries								

If such control areas cannot be found, PBEC should consider deliberately blocking out an area, i.e., selected local public broadcasting stations would not transmit PBEC material. There is danger in that the explanation would be weak and might tend to bias any survey. Failing this, PBEC could selectively substitute material in prescribed areas. For example, TV segments dealing with a subject can be treated in different ways, shown in different areas, and the effectiveness of each approach measured. Or, some area would not receive any broadcasts on something like the power crisis while others do.

PBEC should also consider its ability to get at captive audiences. Short films can be shown on airplanes and in movie houses, printed matter distributed on the Metroliners, and, of course, public transit posters.

In general, the evaluation of the impact of PBEC's activities will be compounded due to other, independent programs being directed towards the same Quality of Life issues. We note, for example, that the publication "My Weekly Reader" has initiated a 12-week campaign on environmental problems. This publication is received by millions of elementary school children. Also, PTV stations are now showing an eight-week series of half-hour films on environmental problems.

4.6 Measuring the Effects of PBEC Programming

4.6.1 General Indicators. The indicators and measures necessary to evaluate the impact of PBEC programming have been studied with the results as given in Exhibit 25. The approach outlined is particularly applicable to general audiences and is adaptable to measurement of special target audiences within the general audience. The approach is postulated on the sequence of measurable events:

Audience contact with PBEC messages, which leads to -
Audience changes in knowledge and attitudes, which leads to -
Audience behavior changes, which leads to -
Beneficial changes in the environment.

Each of these events can be measured and approaches to their measurement are detailed. Also, in Exhibit 27 "Quality of Life Issues and Indicators", we describe the environmental issues and associated indicators that will be attacked through audience behavior changes.

As noted in the discussion of Fig. 3 above, the measurement process assumes that measurable elements must be included in the design of a programming activity. Each measurable audience objective must be related to an environmental objective, thence to PBEC activities and products, and finally to an indicator which can be measured and evaluated. This process and some possible program concepts described in terms of objective-oriented products are set forth in Exhibit 28 "Possible PBEC Objective-Oriented Products".

4.6.2 Baseline Data. Any approach to the evaluation of an effective activity must assume the availability of information which describes the initial state of the elements being influenced. For PBEC, this pertains to our ability to know for delineated target audiences their attitudes, knowledge and behavior patterns (actions) towards a full range of Quality of Life issues. To date, such information is not available or is of such a general nature as to be of no value for our purposes. In addition, as the desired outcomes of PBEC's activities are positive changes to the Quality of Life issues--changes, some of which can be attributed to PBEC--we must then, at a minimum, have some agreement on what the issues are, what indicators and measures relate to each issue, what are the current states of these indicators, and how changes in these indicators will be measured and evaluated. Again, little, if any, work in this area has been done which is of value to PBEC. Thus, in the following, we propose the accomplishment of a set of surveys and studies which will yield a good approximation of the required baseline data.

4.6.2.1 Target Audiences. Listed below is an initial set of target audiences for which baseline data must be collected. The development of suitable questionnaires for measuring the target audiences' attitudes and knowledge towards environmental problems will be a key task of Phase II.

(1) General Population - U.S. Cross section
Initial Lou Harris survey and questions will yield structure of population's general attitude, but the questions are not specific enough to yield data for a solid baseline.
(2) Preschool - urban/urban ghetto, suburban, rural
(3) Kindergarten through eighth grade - urban/urban ghetto, suburban, rural. (Emphasize ages 6-7 and 10-11.)
(4) High School - urban/urban ghetto, suburban, rural
(5) College - Eastern, Southern, Midwest, West/State, private-large, medium).

(6) Adult (25-40) - Middle America
(7) Adult (18-40) - Ghetto Minority
(8) Adult (Management) - Industrial
(9) Adult (Monied Group) - Top Industrial Management, Bankers, Money Managers, Opinion Leaders and Shapers
(10) Adult (Female) - Housewife
(11) Adult (Union/Blue Collar) - Factory, Construction
(12) Adult (Educators) - Public School systems; urban, suburban, rural

4.6.2.2. Surveys. Survey instruments must be designed for each target audience in terms of the target audience. We must develop an instrument which will tell us how that audience views the issues, such information forming a corresponding baseline vector. To accomplish this, we must join with environmentalists, PBEC production personnel, as well as survey personnel. It is imperative that we ask the correct questions and that they relate to proposed PBEC activities as influenced by Quality of Life considerations and priorities and project objectives (See Appendix V).

The surveys can be accomplished by the Educational Test Service, Inc.; Louis Harris and Associates, Inc.; Q.E.D. Research; the Gallup Organization, Inc. and others.

With respect to sampling and surveys, PBEC must keep the following essentials clearly in mind.

Our guidelines in any proposed statistical work is given by the statement:

> "In general, statistical work consists first of all of determining what kinds of statistical information would be useful for the ends in view; of deciding whether the desired information can be obtained at all or at reasonable cost; and then of procuring this information at the lowest possible cost, and interpreting it in a form that assists rational decisions and adds to knowledge."[1/]

Thus, as Deming notes, every survey has a purpose--to get the answers to certain questions that will affect decisions or provide increased knowledge.

[1/] W.E. Deming, "Some Theory of Sampling," Dover Publications, 1966.

The steps in taking a survey, 2/ as related to PBEC, are:

1. Define the problem statistically; decide what statistical information is really needed. For PBEC, we should simulate the types of data which we would gather in the proposed survey, e.g., counts, percentages, and see how the information would be used in any analysis.

2. Define the universe, i.e., the target audience, to be studied. This requires PBEC to define its complete set of target audiences before the onset of its programming efforts and to relate segments of the programs to objectives which are directed towards a subset of the audiences.

3. Make a thorough investigation to see how much of the information that is needed is already available in published or unpublished reports. Except for previous, limited surveys dealing with PTV and PRadio audiences, we expect few other surveys to be of interest. There might, however, be surveys dealing with the Quality of Life issues which would be of value, i.e., the Fortune Magazine survey (1969) of 270 chief executives on environmental matters.

4. Decide what type of survey, if any, could possibly provide the information that is desired, and do so at reasonable cost. This brings up the questions of large surveys, surveys over time, the timing of the survey, i.e., when it should be given. We note that if a PBEC activity requires a survey for its evaluation, the form of the survey should be determined at the same time the activity is structured.

5. Lay plans for reducing the burdens of response, and for eliciting clear, intelligible information. This calls for PBEC to develop unambiguous definitions of Quality of Life issues, e.g., what do we mean by air pollution, to ensure that any responses deal with the same concepts.

6. Lay out roughly several alternative sample designs to show approximately what the costs will be for various degrees of precision. Depending on the sample size and cost, we can vary the maximum allowable sampling error, i.e., our sample can be designed so that it will estimate within x percent what would have been the result of applying the same testing procedure to every member of the universe.

2/ Ibid.

7. Provide supplementary samples that will measure the completeness of coverage, the possible effects of errors arising from response and non-response and from differences between interviewers, differences due to procedures of collection and interviewing, and differences in cost between various prcedures. These items will, in general, be the concern of the survey organization, but PBEC should be aware of the organization's approach to these matters.

8. Draw up instructions for the field workers. Again, this is one of the tasks of the survey group, but PBEC should review the instructions before field operations begin.

9. Develop the tabulation plans and eventually finalize them. The form of the survey results will usually be forwarded to PBEC in the survey organizations standard format. Special breakouts should be requested early, and any special use of the data by the External Evaluation System should be established and coordinated.

10. Pretest the questionnaire and instructions for the field workers. PBEC must have a hand in the design of the questions as they relate to the objectives and activities being tested. Careful consideration should be given to the running of pretests.

11. Revise the questionnaire and instructions.

12. Finalize the sampling procedure. Here we want to ensure proper coverage of the target audience, e.g., home surveys of factory workers should be conducted at night or on weekends.

13. Instruct field crews; carry out the survey; reduce data, tabulate and cross-tabulate.

14. Compute the sampling errors.

15. Interpret and publish the results. A report must be prepared for PBEC management setting forth the conclusions reached as a result of the survey. In some instances, the survey results will be compared to target audience's baseline vector. The report would then contain a discussion on the changes in the baseline with respect to PBEC's influence on the baseline items.

4.6.2.3 Quality of Life Issues and Indicators. There is no agreed-upon list of issues and indicators. PBEC must define its area of concern in order to direct its activities toward specified objectives. There is a danger that programming will be done without first being connected to identifiable, measurable objectives.

That is, instead of proceeding from the goals to the programs (top-down), the programs would precede objectives and goals (bottom-up). It is felt that some such post-connections will be unavoidable, but we should attempt to keep it at a minimum.

Exhibit 27 contains an initial statement of Quality of Life issues and indicators. We must further refine the list, make it more complete, and select the subset which is to be associated with PBEC. It could be the whole list. In addition, values and estimates of the current state of each indicator is required. Some of this information will be quantitative, but many items will be characterized by qualifying words, e.g., little, increased level. Standards have not been established for most indicators. PBEC can be the mechanism to force agreement on standard values.

4.6.2.4 Use of Baseline Data and Indicators. Assume for target audience T_1 we have prepared a baseline vector consisting of n-components. Each component represents either a percentage figure or a normalized score. For example, 48% of T_1 believe they as individuals cannot aid in arresting the causes of brown-outs, blackouts, and power shortages; on a scale of concern from 1 to 100, 50% of T_1 rank water pollution between 80-90, while 4% of T_1 rank air pollution between 20-30; 60% of T_1 cannot think of any ways to contribute to the Quality of Life issue chemical pollution, while 10% have taken the specific action of not buying DDT products. As noted above, the specific items which will form the audience's baseline vector have to be decided upon during the design of the corresponding survey instrument. As PBEC programs (TV, radio, other media) will be directed towards audience T_1 with the specific objective of changing specified elements of T_1's baseline, we would have to conduct surveys over time to determine if such corresponding, desired changes have been accomplished. Two basic problems arise here: (1) our ability to maintain a control group and (2) our ability to develop statistical measures which will give some indication of the ability of the PBEC activities to change the baseline vectors. These research items will be a major activity of the Phase II effort, as well as the development of the proper baselines for selected target audiences.

In a similar vein, initial values of the Quality of Life issues must be determined and, as PBEC products are directed towards these issues, changes in these indicators must be measured and the impact of PBEC filtered out. This task will be quite difficult as there will be many forces being applied to the same issues and changes in the indicators will be slow and occur over a rather long time period. The development of an indicator monitoring and evaluation procedure will be a major task of Phase II.

4.6.3 Information needs of the EES. The data requirements of the EES stem from three related areas--Quality of Life indicators, target audinece baselines, and surveys. We shall discuss each in turn.

4.6.3.1 Quality of Life Indicators. A valuable part of PBEC's activities could be the maintaining, evaluation, and publication of the current status of the Quality of Life indicators. Initial estimates show that we would have to collect information for over 300 indicators. PBEC must delineate its function in this area in that to assume the responsibility for developing the indicators also includes the very large task of collecting, sorting, discriminating, and refining the information which yields the indicators. If this is the case, then PBEC could publish a chart, similar to the Doomsday Clock of nuclear weaponry, which indicates the extent of the deterioration in the Quality of Life issues. An approach to this type of charting has been undertaken by the National Wildlife Federation. They have for 1969 and 1970 compiled an EQ Index which reflects the Federation's analysis of available data and the conversion of the data to set of indicators. The indicators are for air, water wildlife, timber, soil, minerals, living space and an overall national EQ index. The data sources are, in general, available from the Federal Government, but the analysis and conclusions are the Federation's.

In sum, PBEC's information needs for the Quality of Life indicators can range from cursory summary data gathered directly from other sources or a detailed information gathering service which includes the setting of indicator standards and determining changes in the values of these indicators.

4.6.3.2 Target Audience Baselines. For a target audience, we must develop a file of information which includes the initial baseline values, the set of PBEC media directed towards the target audience (objective of media, item, time, distribution), and the surveys directed towards the target audience (objective of survey, time given, where given, results of survey). This set of information, which should not be too voluminous, will enable us to form reports that would aid in determining how changes in the baseline are associated with PBEC products. The exact file structure for the target audience records will be defined in Phase II.

4.6.3.3 Surveys. Survey reports obtained from the survey research organizations will represent the main data set in this area. For each such report, PBEC would require it to be presented in a standardized format. As the survey companies would, in general, submit their computations using their basic reporting formats, the PBEC computing system should allow for the taking of this data and reshaping it into a standard PBEC format. An information retrieval approach to this and related data on target audiences and indicators should be considered which would allow PBEC management to pose questions on the current status and receive, in turn, meaningful data in a useful format.

An information retrieval system would also be required to maintain and select mailing and other lists of PBEC audiences. We would expect to build name lists based on responses solicited by PBEC media and use these lists for mail and other surveys, distribution of material, and evaluation of selected PBEC media. Demographic characteristics, if available, would be part of the name files, along with some indication of which PBEC media each person responded to or had been exposed to. We might also consider establishing baselines for selected individuals, both on and off the name file, and trace their baseline changes as PBEC programming progresses.

4.7 Educational Evaluation

Primary and secondary school children comprise one of the most important target audiences whose environmentally related behaviors must be influenced by public broadcast and auxiliary educational materials. The objectives of this formal primary and secondary educational effort are detailed in Appendices II and VIII, but can be paraphrased:

1) to increase environmental literacy and perception;
2) to teach environmental facts and values;
3) to emphasize environmental issues;
4) to stress the need for immediate environmental action.

The use of broadcast media and associated educational support materials designed to change student knowledges, attitudes and behaviors are described in Appendix VIII. The purpose of this section is to outline the evaluation approach to be used in assessing program impact in the primary and secondary grades.

4.7.1 Experimental Approach. We propose to test the hypothesis that primary and secondary children, exposed to public broadcast coupled with associated educational support materials, will measurably change environmental attitudes, values and knowledges and exhibit altered environmentally beneficial behaviors.

To test this hypothesis, three general kinds of evaluation will be conducted and are sketched below.

Developmental Evaluation. As soon as instructional goals and educational objectives have been specified for programming and support materials by the Environmental Education Group and their consultants and incorporated by them and the Production Group into Program Development Plan, External Evaluation will convene a panel of recognized educational evaluation experts. (See Appendix X-A and XII for Planning Advisory Committees). The panel will review the program goals and objectives and advise upon the development of a formative test program. The purpose of the formative test is to evaluate the effectiveness of developmental materials and to provide feedback allowing heuristic alteration of pilot program elements in real time by Education and Production Groups. This formative testing will be conducted in a few carefully selected schools, evaluating the impact of developmental material (film strips, TV show segments, kits, games, etc.). The test mehtods used will be suggested by the Planning Advisory Committees, but should include natural context observations in school, home and/or students.

Data from the developmental evaluations will be analyzed and evaluated and immediately fed back to the pilot production effort.

Pilot Evaluation. As soon as pilot materials are ready, a pilot evaluation will be conducted. Here, the groups tested will be larger, approximating national sample characteristics. Classroom observation will be augmented by interview evaluation of students, teachers and parents. The evaluation will first feature pre-exposure evaluation. These pre-tests will establish baseline values and vectors in the specific affective and cognitive objective areas designed into the pilot program content and format. Next, process testing will measure personal and group program impact/acceptability/appeal. Process testing will also attempt to develop data on repetition, reinforcement and augmentation functions of the various program elements. Finally, post-testing after pilot exposure will exphasize measurable alteration of environmental knowledges, attitudes and behaviors, but can necessarily measure only short-term retention.

Reduced and analyzed results will be used to modify the format and content of production release materials then being planned. These results will be again reviewed by an expert group prior to production implementation.

Field Evaluation. The field testing will evaluate the impact of the production materials on full sample target audiences. Again, an expert group will convene to assess the proposed test program and advise upon it. The field tests will include: pre-broadcast/teaching testing (to establish student and teacher environmental baselines and vectors prior to the broadcast/teaching exposure); process testing, during the broadcast/teaching exposure (to determine, via a program of periodic achievement testing) progress toward defined environmental educational objectives; and terminal testing, after the education exposure, to determine objective attainment and student and teacher baseline and vector shift. The process testing will serve to alter product content, format and exposure frequency and intensity even during the first broadcast/teaching season. The terminal testing will provide the data needed for the external-internal evaluation system function which will dtermine (in part) the cost-effectiveness and accountability of the PBEC efforts. More importantly, this data will permit rational revision of the program development and production plans for the second broadcast/teaching season. Finally, the collated field test information, analyzed and summarized for accomplishment and failure by an independent and objective agency should be treated as a unique body of knowledge, to be shared with all who are interested in the implication of public broadcast in environmental education.

4.7.2 Experimental Operations. As indicated above, the Research Advisory Committees will paly an important role in the Educational External Evaluation effort. Comprised of educators, media experts, psychologists and others, especially skilled in educational evaluation, their role will be to advise and consent to the evaluation plans at every level: development, pilot and field test. In addition they will meet regularly to review results and aid in analysis interpretation. Finally, they will give guidance on the disciplinary and philosophic structure of the evaluation effort as a whole, and its integration into the PBEC long-range plan. Though they may, from time to time, observe the evaluative event in process, they are not to be the evaluators; rather, they are the evaluators of the evaluators.

The actual evaluation work (design of models, test design, test administration, data reduction and analysis) will be done by PBEC staff assisted by consultants and contractors. No contractor to conduct the evaluation has been identified, but many have been evaluated as potential resources. Among the universities, particularly useful contacts have been made with: City University of New York (Dr. Gary Winkel, Center for Behavioral Psychology); University of Utah (Dr. Gabriel Della Piana, Director, Bureau of Educational Research); University of

Michigan (Dr. Angus Cambell, Director, Institute for Social Research); and the University of Wisconsin (Dr. Clarence A. Schoenfeld, Chairman, Center for Environmental Communications and Education Studies).

Several private companies with demonstrated skills in educational evaluation have been contacted, including: Educational Testing Service, Inc., Marshall, Kaplan, Ganz and Kahn; and the Institution for Educational Development, Inc.

The National Academy of Sciences Behavioral Science Division, experts in HEW and in other government agencies have been contacted. Knowledgeable consultants have been made aware of PBEC's programs. These consultants include teachers and teachers of teachers as well as experts in education evaluation.

Also, strong relationships have been established with research experts in the Corporation for Public Broadcasting, (Mr. Leroy Miller, Research Director), The Children's Television Workshop (Dr. Edward L. Palmer, Research Director) and others in public and commercial broadcast.

Professional associations with competence in manipulating and measuring attitudinal and behavioral responses have been consulted, including eh National Education Association, the American Psychological Association, and the Society for Research in Child Development.

A variety of contractors and consultants will be selected to assist PBEC in the educational evaluation after a competition based on firm criteria (the latter concurred in by the Planning Advisory Committee).

4.7.3 Experimental Design. Though the experiment design is not complete, tentatively the following is planned.

The target audiences will be six through seven years old, ten through eleven years old and high school grades. The test areas will include political divisions (state/county), to broadcast regions (station/network), and possibly a geo-ecological domain (Watershed/river basin/urban/rural). The areas will be nationally distributed, potentially up to three of each of the test area varieties will be included, for a total of nine nationally distributed test areas. We contemplate the use of eight classrooms per age group in each audio-visual (AV) test area to provide a statistically significant test body of 216 classrooms. With a national mean of about 30 per class, the final exposed group should approach 5,500 after allowing for sample attrition.

In each age group/test area subset sample the following groupings will be established among the 10 classrooms:

	Use Educational Impact Materials	Not use Educational Impact Materials
See/Hear PBEC AV Materials	Group 1	Group 2
Not See/Hear PBEC AV Materials	Group 3	Group 4

As indicated in 4.5.2 above, establishment and maintenance of valid control groups may prove difficult. Particularly if the Quality of Life hour long prime time program including numerous educational segments proves successful, it may be difficult to deny the package to local public broadcast outlets. Special plans must be made to deal with this design contingency.

The test methods as indicated above will always emphasize natural context evaluation and personal contact; when appropriate, graphic and written response instruments will be employed. Qualitative and quantitative measures will be used as appropriate; experiment design will be rigorous, to permit quantitative and statistical treatment of the data whenever possible.

5.0 Conclusions and Recommendations

5.1 Conclusions

We conclude that:

a. Based upon this effort, the establishment and operation of a powerful, accurate, credible and cost-effective External Evaluation System is feasible.

b. Environmentally related attitudes, knowledges and behaviors of target audiences, both general and specific, can be measured and related to PBEC goals and objectives.

c. It is less certain (but probable) that specific changes in the environment (related to PBEC-induced behaviors) can be measured with credibility.

d. Such an EES is a vital part of the PBEC activity and should be fully utilized by: relating to the Internal Evaluation System; giving operationally useful data to PBEC management; supplying information to the PBEC Communications Service; relating to the Education and Program Development groups in PBEC; using generated data for the public good (through CPB, CTW, the U.S. Government Executive and Legislative Branches and their agents, academia, etc.).

5.2 Recommendations

We recommend that:

a. An EES be established under PBEC Director of Planning and Evaluation.

b. The EES be operated in accordance with the objectives, the system and conceptual and analytic models set forth in the report above.

c. The EES be strongly integrated with the Internal Evaluation System, the Information System (also a part of Planning and Evaluation), and the Communication Service and the PBEC Management Group; the Education Group; and Environmental Action Group.

d. The EES be operated using the smallest number of PBEC professionals, consistent with cost-effectiveness and that the EES effort be contracted whenever possible.

e. Effective advisory relationships be maintained with the educational evaluation community and special close relationships be developed with CPB and CTW Research Groups to assure cost-effectiveness.

Bibliography

1. Dalkey, N.C. and R. Lewis, D. Snyder: "Measurement and Analysis of the Quality of Life with Exploratory Illustrations of Applications to Career and Transportation Choices," RM-6228-DOT, The RAND Corporation, Santa Monica, California, August, 1970.

2. Deming, W.E.: *Some Theory of Sampling*, Dover Publications, Inc., New York, 1966.

3. Editors of *Fortune*: *The Environment*, Harper and Row, New York, 1969.

4. EQ Index: *National Wildlife Magazine*, October-November, 1970.

5. Fishburn, P.C.: "Methods of Estimating Additive Utilities, "*Management* Science, Vol. 13, No. 7, March, 1967.

6. Gross, B.M. (ed.): "Social Goasl and Indicators for American Society, I and II, "*The Annals of the American Academy of Political and Social Science*, Vol. 371, Vol. 373, May, 1967, September, 1967.

7. Platt, J.: "What We Must Do," *Science*, Vol. 166, pp. 1115-1121, November 28, 1969.

8. Raiffa, H.: "Preferences for Multi-attributed Alternatives," RM 5868-DOT/RD, the RAND Corporation, Santa Monica, California, April, 1969.

9. Terleckyj, N.E.: "Measuring Progress Towards Social Goals: Some Possibilities at National and Local Levels," *Management Science*, Vol. 16, No. 12, August, 1970.

3. PBEC MANAGEMENT CONTROL & INTERNAL EVALUATION SYSTEM

1.0 PBEC Management System Concept

1.1 Introduction

This paper contains a brief discussion of the PBEC Management Control and Internal Evaluation System concept; a description of the analysis that was conducted during Phase I planning in order to develop this concept; an outline of the system design tasks that will be completed by the end of Phase I; a task-time schedule of system implementation activities for Phase II; and some examples of system elements that are currently under development.

1.2 Purpose and Objectives

The PBEC Management Control and Internal Evaluation Systems[1] will provide a logic structure for conducting PBEC planning, administration, and evaluation activities; will contain policies, procedures, and techniques for coordinating and controlling these activities; will define data required for the evaluation of internal administrative and external production and distribution operations; will provide a framework for combining internal and external production and distribution operations; and will support cost-benefit and operations and the overall effectiveness of the program.

1.3 System Summary

To accomplish these objectives, a recommended Management System concept has been designed (Figure 1) to function within a five year planning and evaluation cycle and a series of one year detailed implementation cycles. It contains eight major subsystems: Five-Year Forecast; Division Operating Projections; Annual Program Plan; Internal Operations Control Program; Production Control Program; Distribution Control Program; Internal Evaluation Program; and Management Information System. It is also tied directly into and interacts with the External Evaluation Program[2].

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[1] The Internal Evaluation System is actually a subsystem of the Management Control System, and will be referred to as such in this paper.

[2] The External Evaluation Program is also closely tied to the overall system. It is described in another section of this report.

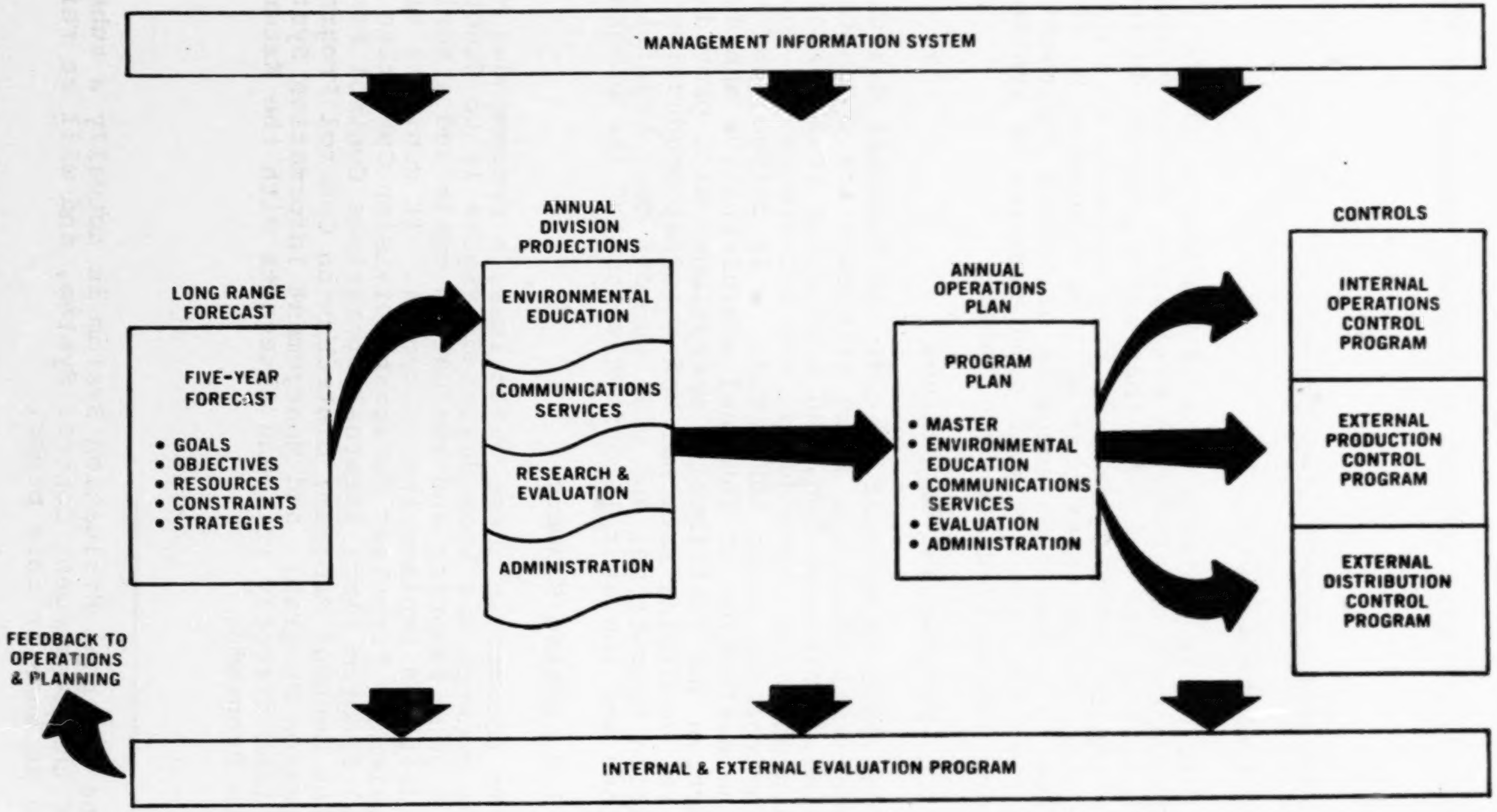
MANAGEMENT INFORMATION SYSTEM
LONG RANGE FORECAST
FIVE-YEAR FORECAST
• GOALS
• OBJECTIVES
• RESOURCES
• CONSTRAINTS
• STRATEGIES
ANNUAL DIVISION PROJECTIONS
ENVIRONMENTAL EDUCATION
COMMUNICATIONS SERVICES
RESEARCH & EVALUATION
ADMINISTRATION
ANNUAL OPERATIONS PLAN
PROGRAM PLAN
• MASTER
• ENVIRONMENTAL EDUCATION
• COMMUNICATIONS SERVICES
• EVALUATION
• ADMINISTRATION
CONTROLS
INTERNAL OPERATIONS CONTROL PROGRAM
EXTERNAL PRODUCTION CONTROL PROGRAM
EXTERNAL DISTRIBUTION CONTROL PROGRAM
FEEDBACK TO OPERATIONS & PLANNING
INTERNAL & EXTERNAL EVALUATION PROGRAM

Fig. 1
PBEC MANAGEMENT CONTROL SYSTEM SUMMARY FLOW CHART

At the beginning of a five year planning and evaluation cycle, the PBEC Executive Director and his staff would develop a Five-Year Forecast outlining PBEC's goals, objectives, resources, constraints, and strategy for using resources to attain goals and objectives. This Five-Year Forecast would then be given to PBEC Division Directors as a guideline for developing their Division Operating Projections. Each Division Director would develop a statement of objectives, a task-time work schedule for meeting first year objectives, an organization and staffing plan, and a first year budget request.

After reconciliation, each division's projection would be incorporated into the Annual Program Plan. This plan would contain the PBEC Objectives Statement, a PBEC Master Work Program, an Organization and Staffing Plan, and an Operating Budget, all compiled from the divisional requirements. This Annual Program Plan would thus become the master guide for conducting and controlling the coming year's operations.

Three separate subsystems would be used to establish management control over PBEC internal and external operations. The Internal Operations Control Program would monitor the operations of each PBEC division to assist them to meet planned objectives on time and within budget. The Production Control Program would monitor external elements of TV film, radio script and supplemental materials production, from concept to distribution. The Distribution Control Program[3] would monitor external activities that were unique to the distribution function.

The Management Information System will tie together all internal and external elements of the PBEC Management System, will interact with the External Evaluation System, and with all outside users and suppliers of PBEC related information. The Internal Evaluation Program is also closely associated with every element in the PBEC Management System. It takes its focus from the goals and objectives that are established during planning. It is used to improve operations by analyzing whether or not these goals and objectives are efficiently and effectively being accomplished during implementation, based on information fed from the three primary control subsystems.

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[3] "Distribution" may be a misnomer--it is meant to include both distribution of PBEC materials, and use of these materials by all peripheral units of the PBEC Education System.

It is also structured to improve planning by interacting with the external evaluation processes to jointly determine the best future ways to allocate PBEC resources. Cost-benefit, cost-effectiveness, operations research and other modern management techniques would be utilized as internal evaluation tools.

2.0 Phase I Analysis and Recommendations

2.1 Analysis

During Phase I, systems analysis techniques were used to determine what type of management control concept would best support PBEC operations.

The following conclusions were reached as a result of this Phase I analysis effort:

2.1.1 The PBEC Management Control System (MCS) should be comprehensive in concept in order to provide both the overall structural framework and specific required techniques and procedures to aid staff personnel in making decisions relevant to operations and planning.

2.1.2 For the PBEC MCS to be most effective, it should be based on Planning-Programming-Budgeting-System (PPBS) concepts, with emphasis on establishing goals and objectives, and using modern management techniques to evaluate progress and improve performance.

2.1.3 The MCS should contain basic management control elements such as long-range forecasts, budgets, task-time schedules, etc. The administrative unit should also contain stringent accounting checks and balances to assure fiscal integrity, and legal immunity of PBEC and its employees.

2.1.4 Specific internal operations control programs, with information feedback, should be established to meet the unique operational and planning needs of each functional group within PBEC.

2.1.5 The MCS should contain a particularly strong set of internal and external production controls, techniques, and procedures; since timeliness and quality of TV, radio, and materials production is extremely critical to accomplishment of PBEC goals and objectives.

2.1.6 The MCS should have a control subsystem that monitors local station utilization of TV programs, radio broadcasts, and supplemental materials to support environmental education and action.

2.1.7 A management information sub-system should be incorporated as a part of the overall MCS framework.

2.1.8 The results of internal and external evaluation should be closely incorporated into the MCS decision-making process through the utilization of systems analysis, cost-benefit, cost-effectiveness, and operations research techniques. These highly analytical techniques could then provide management with continuing feedback to improve program progress and impact, and with recommendations on how future resources could be better utilized for optimum program effectiveness.

2.1.9 A strong Management Control System, regardless of how well it has been designed, will have a limited positive effect on planning and operations unless all key internal and external personnel are trained to use it, and want to use it.

2.2 Recommendations

From these conclusions the following recommendations were submitted:

2.2.1 That PBEC develop an eight-element PPBS-oriented comprehensive Management Control System, as shown in Figure 1, consisting of a Five-Year Forecast, Divisional Operating Projections, Annual Program Plan, Internal Operations Control Program[4], Management Information Procedures, and Internal Evaluation Procedures.

2.2.2 All elements of the system should be operational (manually) by approximately June 1, 1971.

2.2.3 The planning elements of the system (Five-Year Forecast, Division Operating Projections, Annual Program Plan) should be developed in draft form while Phase I planning is being completed, and ready for management approval by January 1, 1971.

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[4] Used to monitor external use of programs and materials developed by PBEC.

2.2.4 The operational elements of the system (Internal Operations, Production, and Distribution Control Programs) should be developed during the first three months of Phase II, and should be fully operational by March 1, 1971. Certain included elements (i.e., TV production control, and accounting controls) should be developed as soon as possible.

2.2.5 The support elements of the Management System (Information System and Internal Evaluation Procedures) should be developed on an "as-needed" priority basis during the period from January 1, 1971 through June 1, 1971. All basic aspects of these two sub-systems should be operational (manually) at that time.

2.2.6 Two control sub-elements--accounting procedures within the Internal Operations Control Program, and TV production scheduling within the Production Control Program--are obviously amenable to computerization. Development of computer programs for these two elements should begin as soon as manual procedures have been tested and necessary modifications completed (approximately June 1, 1971).

2.2.7 Many elements of the Management Information System (Procedures) will probably be amenable to computerization. A feasibility study and subsequent development of applicable programs should be initiated as soon as testing and modification of the manual system has been completed (approximately September 1, 1971). Note that the manual Management Information System will be initially designed for computer compatibility.

2.2.8 That a series of periodic internal operations, production and distribution evaluation reports be developed and implemented as part of the operational MCS.

2.2.9 That provision be made for developing special evaluation reports as internal operations and external inputs suggest the need.

2.2.10 That Systems Analyses, Cost-Benefit, Cost-Effectiveness, and Operations Research techniques be implemented as part of the Internal Evaluational Procedures (a subsystem of the PBEC Management Control System) on an "as-needed" basis early in Phase II operations, and that the Internal and External Evaluation Procedures be integrated where feasible.

2.2.11 That a formal and on-the-job staff training program on the purpose and use of management information and controls be designed and conducted by the MCS contractor, to be initiated by April 1, 1971, and continued on an "as-needed" basis for the remainder of Phase II operations. This training should be available to internal staff initially, and then should be provided to external groups (local stations, TV production contractors, etc.) as necessary to improve overall PBEC control of operations.

2.2.12 That management control, management information, and operations evaluation technical assistance be made available to local stations and other units of the overall PBEC Education System, since their operational effectiveness will greatly affect PBEC goal and objective attainment.

3.0 Phase II Development of the PBEC Management System

3.1 Work Completed During Phase I

Work to be completed by the end of Phase I includes: design and documentation of the PBEC Management Control and Internal Evaluation System concept, its key elements, and how it will operate in Phase II; a definition of the linkage between internal and external evaluation; development of a functional organizational concept[5]; drafting of some immediately required administrative policies and procedures that will later become part of the details of the Internal Operations Control Program[6]; development of operations flow charts for later incorporation into the Internal Operations, Production and Distribution Control Programs; development of a detailed work program and budget for implementing the Management Control and Evaluation System during Phase II; development of a first draft of the three planning elements of the MCS (Five-Year Forecast, Division Operating Projections, Annual Program Plan); and conduct of a staff orientation session to introduce Management Control concepts, and to define how the individual staff members can and should participate in the development of MCS elements.

Thus, all MCS concept work and some required detail work will be completed during Phase I. Detail design and implementation work in most cases will be deferred until Phase II.

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[5] Included as Appendix.

[6] These are contained in Appendix VI.

3.2 Work Schedule for Phase II

Their are seven major management system implementation tasks planned for 1971 (see Figure 2):

I. Finalize Planning Elements of MCS;

II. Detail Design and Implement Operations Element of MCS;

III. Design and Implement the Management Information and Evaluation Sub-Systems of MCS;

IV. Develop and Implement a Staff Training Program;

V. Automate Production and Accounting Control Elements;

VI. Automate Management Information System Elements;

VII. Provide MCS Technical Assistance.

Task I - Finalize Planning Elements of MCS

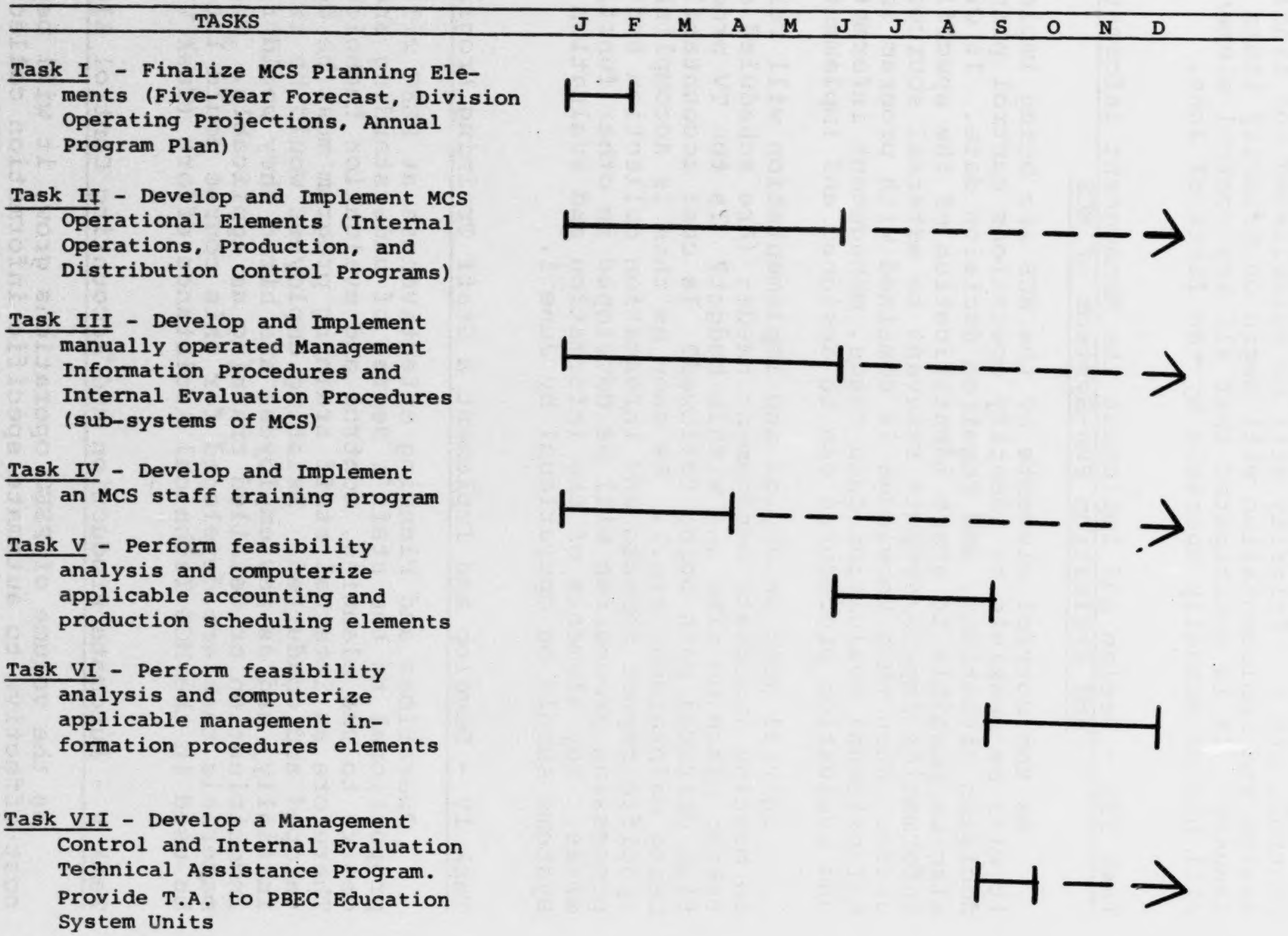
Draft copies of the Five-Year Forecast, Division Operating Projections, and Annual Programs Plan will have been developed during December. During January, they will be finalized. This solidification and quantification of functional area objectives, schedules, processes, products, budgets and personnel is a requisite for initiating the Internal Operations, Production, and Distribution Control Programs since the control programs will subsequently monitor and compare actual vs. planned attainment in each of these areas.

Task II - Detail Design and Implement Operations Elements of MCS

During Phase I, preliminary design work was completed for the Internal Operations, Production, and Distribution Control Programs. Specific elements of each of these control programs will be required early in Phase II (i.e., TV production control, contracts control, internal expense

Figure 2

Schedule for Management Control System



control, etc.). Priority will be established and final design and implementation will begin on priority items in January. It is anticipated that all key control elements will become manually operable by the first of June.

Task III - Design and Implement the Management Information and Evaluation Sub-Systems of MCS

As the control elements of the MCS are being implemented, it will be possible to identify operations control points, decision situations, and required decision data. It will also be possible to start identification of the specific information inputs/outputs relevant to external sources/users. When this knowledge is combined with program internal/external evaluation data needs, management information and evaluation procedures can be designed and implemented.

Initial work on design and implementation will relate to meeting immediate management needs; (Are scheduled events taking place on time and within budget? Is the TV production critical path being followed? Is cost accountability being maintained? etc.). As soon as this is accomplished, specific report formats and information collection and processing procedures will be developed in other functional areas. Key elements of the information and evaluation subsystems should be operational by June 1.

Task IV - Develop and Implement a Staff Training Program

Operations and Planning effectiveness at PBEC will be proportional to the staff's degree of understanding and desire to use planning, control and evaluation techniques. Therefore an internal staff training program must be developed and conducted. Existing employees would be trained initially, and as new employees are hired they would receive indoctrination or detailed training as applicable. The materials that are developed for this course could later be used in the MCS Technical Assistance effort (Task VII).

Task V - Automate Production and Accounting Control Elements

As the volume of PBEC operations grow, it will become cost-effective to automate specific information collection; processing; storage and reporting elements. This point may be reached as soon as September 1971. Therefore, all MIS manual procedures and report formats will be initially designed for later computerization, and documentation will be maintained in a programmable form. When applicable, MIS computer programs will be written, debugged and placed online.

Task VII - Provide MCS Technical Assistance

PBEC's ability to meet its goal and objectives will be considerably influenced by the ability of local stations and producers to produce a quality product on time and within budget. Many local stations and producers may not currently have the staff, training, etc., necessary to do this. Therefore, PBEC will need to provide technical assistance in management control, planning, and evaluation to these units of the PBEC Educational System.

4.0 Elements of the PBEC Management System

4.1 Planning Elements

Planning elements of the Management System have been specifically designed to:

(a) provide a logical structure that will assist and require management at each level within PBEC to anticipate the future. The hard analysis that is required to project ahead will help management identify future operational pitfalls and thus allow management to move the organization toward its goals and objectives, rather than spending time "putting out fires" that were avoidable;

(b) establish "target" figures against which future organizational accomplishments can be measured and evaluated, in order to improve PBEC operations and planning.

There are three proposed planning elements that have been designed into the PBEC Management System: A Five-Year Forecast, Divisional Operating Projections, and an Annual Program Plan. These elements would be used as follows (refer to Figure 1).

At the beginning of a five year planning and evaluation cycle, the PBEC Executive Director and his staff would develop a Five Year Forecast outlining PBEC's goals and objectives, available or potential resources, constraints that might impede the attainment of goals and objectives, and the proposed PBEC strategy for using resources to overcome constraints and subsequently attain goals and objectives.

The Five Year Forecast would then be given to PBEC Division Directors as a guideline for developing their Division Operating Projections. Each Division Director would then develop a statement of objectives, a task-time work schedule of required operating activities to reach first year objectives, an organization and staffing plan to suit these planned activities, and a budget request to finance divisional operations.

Typically, the combined requests for personnel and funding from each division will exceed the available annual resources of PBEC, and there may be major conflicts between divisional work programs. Therefore, these preliminary Division Operating Projections would have to be reconciled by conferences between the Executive Director and Division Directors.

Once reconciliation had taken place, each division's modified Division Operating Projections would be incorporated into the Annual Program Plan. This program would also contain a PBEC Objectives Statement, a PBEC Master Work Program, an Organization and Staffing Plan, and an Operating Budget compiled from the divisional requirements.

Once completed, this Annual Program Plan would become the master guide for the coming year's operations. It would provide the key elements from which the Internal Operations Control Program and the Internal and External Evaluation Programs would be structured and later tested. It would also contain the material necessary to establish information flows to support internal operations. Completion of the annual plan would aslo mark the end of formal planning efforts for the coming year. From this point onward, PBEC staff activities would focus on the implementation of planned programs.

A significant amount of preliminary work has been done in the development of the planning elements of the PBEC Management Control System. This material is included as Exhibit 1. This preliminary work will be elaborated upon during the remainder of November and December, and the Five Year Forecast, Divisional Operating Projections, and the Annual Program Plan will be finalized within one month after receipt of the operations grant.

4.2 Operations Elements

The operations elements of the PBEC Management System have been designed to:

(a) assist PBEC Managers, at each responsibility level, in positively influencing internal and external events so that specific organizational objectives can be met on time and within budget;

(b) assist external PBEC Education System units (contractors, stations, producers, etc.) to better manage their related operations and thus help PBEC meet its objectives on time and within budget;

(c) provide documentation that can be continually evaluated in order to improve PBEC operations and planning.

Three separate sub-systems would be used to provide management control over PBEC internal and external operations during implementation. The Internal Operations Control Program would be used to monitor the operations of each of the PBEC divisions and to assist the staff in accomplishing planned objectives on time and within budget. The Production Control Program would be used to monitor the internal and external elements of TV film, radio script, and supplemental materials production from concept to distribution. Emphasis would be placed on setting up formal contracts and production schedules with sufficient control check points built into them to assure that PBEC staff producers reviewed progress or lack of it in time to make positive changes where necessary.

The Distribution Control Program would monitor internal and external activities that were unique to the distribution function--provision and utilization government agencies, private agencies, and environmental action groups.

The Operations, Production and Distribution Control Programs will necessarily contain a series of related elements, each of which will have its own unique set of management control tools and techniques. As an example, each PBEC division will have time-task schedules and budgets that will become part of the Internal Operations Control Program. These individual time-task schedules and budgets will also be combined into an overall PBEC Gantt type time-task chart (see example, Figure 3), an overall PBEC PERT type control chart (see example, Figure 4), and an overall PBEC Functional Budget (see Figure 5), which will later be greatly detailed to aid operations control.

Some preliminary work has been completed on each of the three operations elements of the PBEC Management Control System. See Exhibit 2 for draft time-task charts, budgets, and operations flow charts. These will be finalized early in the coming operations year and will dictate the specific types of control elements that are required for each function. As an example, external TV production (Quality of Life, etc.) will be so complex that it will require the development of an automated PERT control network to satisfactorily monitor operations. Other functions may only require monthly updating of a Gantt type time-task chart.

These three formal control programs will be updated from information provided by the PBEC Management Information System, and their base-line figures will later be used to evaluate internal efficiency and effectiveness of operations, as discussed in the section that follows.

4.3 Support Elements

Two support elements would be developed as integral parts of the comprehensive PBEC Management System:

(a) a Management Information System that collected, processed, stored, and documented information required by internal staff to make operational and planning decisions; and required by external parties to understand how PBEC is progressing toward meeting its objectives within specified times and budgets.

(b) an Internal Evaluation Program that can measure the efficiency, cost-effectiveness, and cost-benefits of current and alternative methods of PBEC operations in order to improve current operations and to improve future planning.

4.3.1 PBEC Management Information System

The Management Information System will interface with all internal and external elements of the PBEC Management

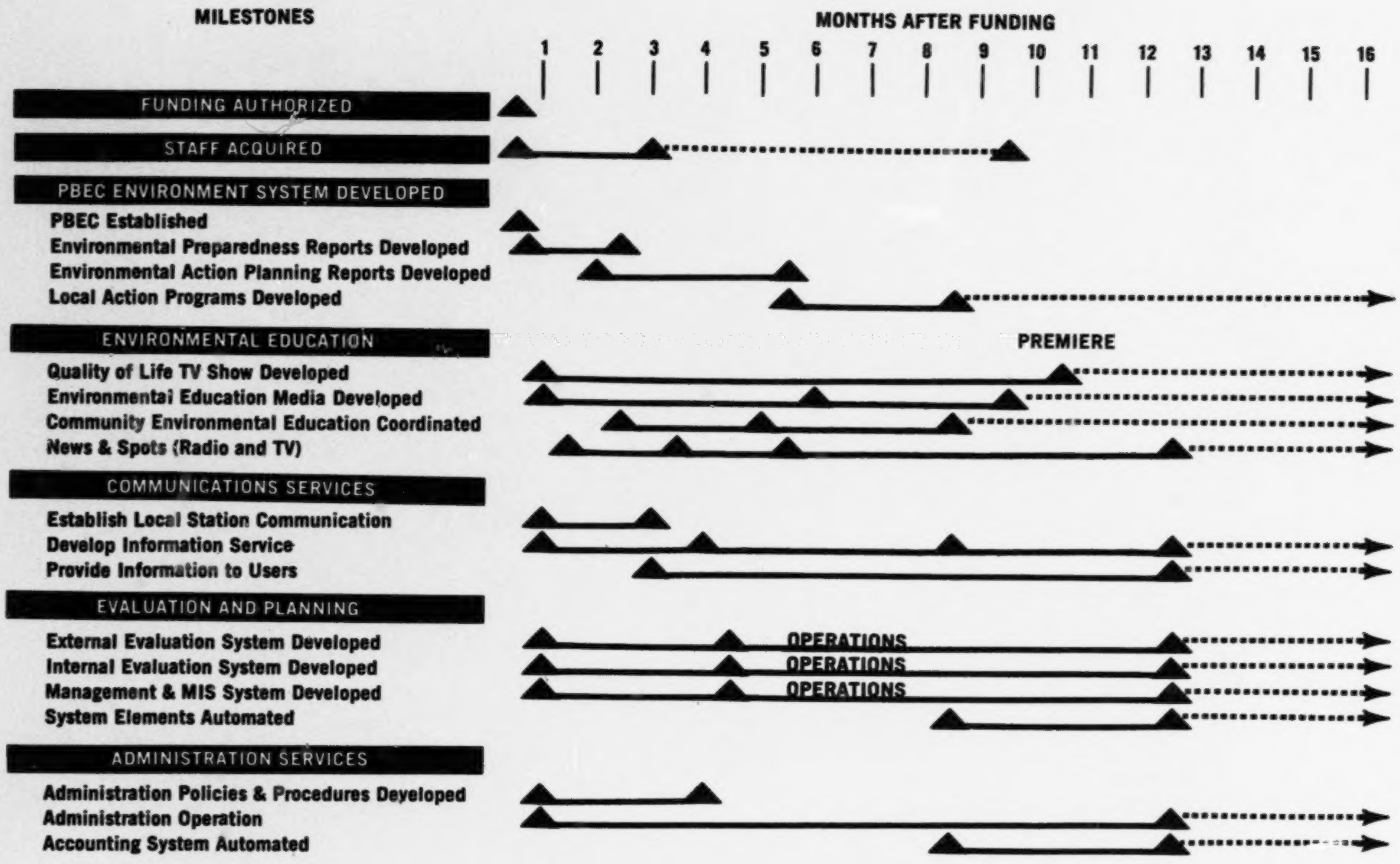
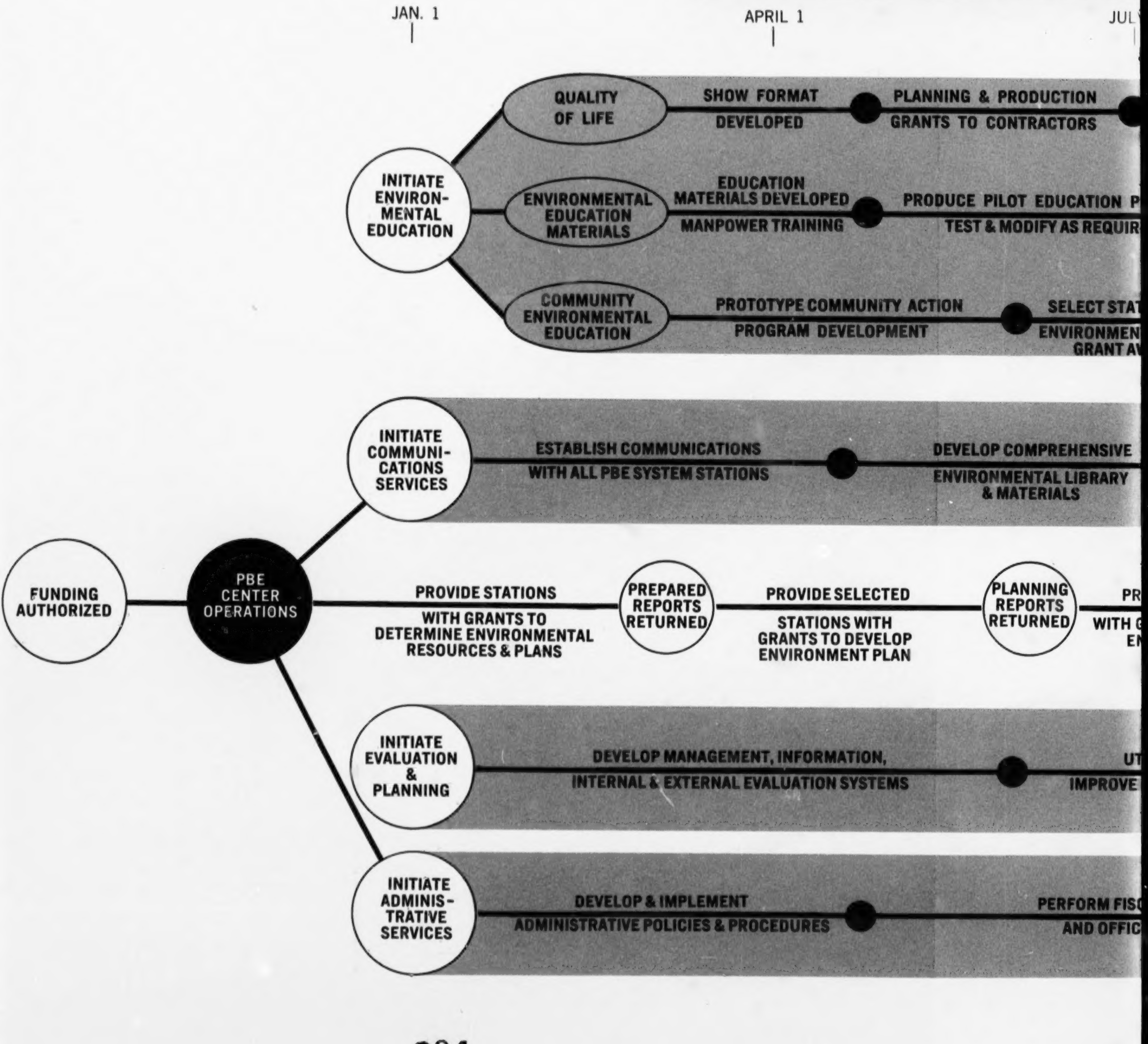


FIG. 3
OVERALL PBEC TIME-TASK (GANTT) CHART
CALENDAR YEAR 1971

PUBLIC BROADCASTING EDUCATIO

SYSTEM OPERATIONS


JAN. 1
APRIL 1
JUL
QUALITY OF LIFE
SHOW FORMAT
DEVELOPED
PLANNING & PRODUCTION
GRANTS TO CONTRACTORS
INITIATE ENVIRON-MENTAL EDUCATION
ENVIRONMENTAL EDUCATION MATERIALS
EDUCATION MATERIALS DEVELOPED
MANPOWER TRAINING
PRODUCE PILOT EDUCATION P
TEST & MODIFY AS REQUIR
COMMUNITY ENVIRONMENTAL EDUCATION
PROTOTYPE COMMUNITY ACTION
PROGRAM DEVELOPMENT
SELECT STAT
ENVIRONMEN
GRANT A
INITIATE COMMUNI-CATIONS SERVICES
ESTABLISH COMMUNICATIONS
WITH ALL PBE SYSTEM STATIONS
DEVELOP COMPREHENSIVE
ENVIRONMENTAL LIBRARY & MATERIALS
FUNDING AUTHORIZED
PBE CENTER OPERATIONS
PROVIDE STATIONS
WITH GRANTS TO DETERMINE ENVIRONMENTAL RESOURCES & PLANS
PREPARED REPORTS RETURNED
PROVIDE SELECTED
STATIONS WITH GRANTS TO DEVELOP ENVIRONMENT PLAN
PLANNING REPORTS RETURNED
PR
WITH G
EN
INITIATE EVALUATION & PLANNING
DEVELOP MANAGEMENT, INFORMATION,
INTERNAL & EXTERNAL EVALUATION SYSTEMS
UT
IMPROVE
INITIATE ADMINIS-TRATIVE SERVICES
DEVELOP & IMPLEMENT
ADMINISTRATIVE POLICIES & PROCEDURES
PERFORM FIS
AND OFFIC

PUBLIC BROADCASTING ENVIRONMENT CENTER EDUCATION SYSTEM

SYSTEM OPERATIONS for Calendar Year 1971

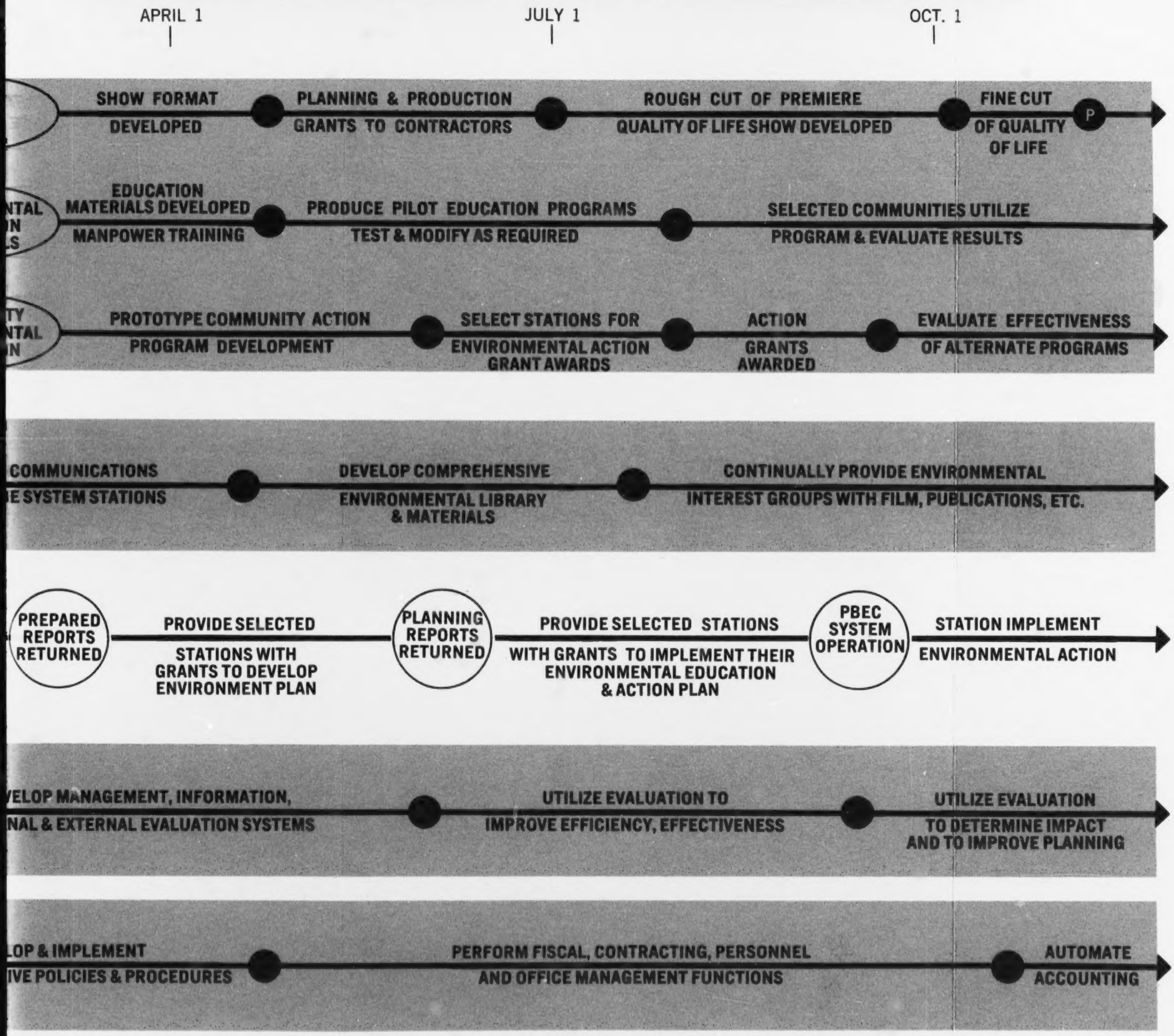

APRIL 1
JULY 1
OCT. 1
SHOW FORMAT DEVELOPED
PLANNING & PRODUCTION GRANTS TO CONTRACTORS
ROUGH CUT OF PREMIERE QUALITY OF LIFE SHOW DEVELOPED
FINE CUT OF QUALITY OF LIFE
P
NTAL
N
LS
EDUCATION MATERIALS DEVELOPED
MANPOWER TRAINING
PRODUCE PILOT EDUCATION PROGRAMS
TEST & MODIFY AS REQUIRED
SELECTED COMMUNITIES UTILIZE PROGRAM & EVALUATE RESULTS
TY
NTAL
N
PROTOTYPE COMMUNITY ACTION PROGRAM DEVELOPMENT
SELECT STATIONS FOR ENVIRONMENTAL ACTION GRANT AWARDS
ACTION GRANTS AWARDED
EVALUATE EFFECTIVENESS OF ALTERNATE PROGRAMS
COMMUNICATIONS
E SYSTEM STATIONS
DEVELOP COMPREHENSIVE ENVIRONMENTAL LIBRARY & MATERIALS
CONTINUALLY PROVIDE ENVIRONMENTAL INTEREST GROUPS WITH FILM, PUBLICATIONS, ETC.
PREPARED REPORTS RETURNED
PROVIDE SELECTED STATIONS WITH GRANTS TO DEVELOP ENVIRONMENT PLAN
PLANNING REPORTS RETURNED
PROVIDE SELECTED STATIONS WITH GRANTS TO IMPLEMENT THEIR ENVIRONMENTAL EDUCATION & ACTION PLAN
PBEC SYSTEM OPERATION
STATION IMPLEMENT ENVIRONMENTAL ACTION
VELOP MANAGEMENT, INFORMATION,
NAL & EXTERNAL EVALUATION SYSTEMS
UTILIZE EVALUATION TO IMPROVE EFFICIENCY, EFFECTIVENESS
UTILIZE EVALUATION TO DETERMINE IMPACT AND TO IMPROVE PLANNING
LOP & IMPLEMENT
IVE POLICIES & PROCEDURES
PERFORM FISCAL, CONTRACTING, PERSONNEL AND OFFICE MANAGEMENT FUNCTIONS
AUTOMATE ACCOUNTING

Figure 5

PUBLIC BROADCASTING ENVIRONMENT CENTER

EDUCATION SYSTEM

(Estimated Costs for Calendar Year 1971)
(add 000)

By Function

	Contracts	Labor & Overhead	Totals
A. PBEC Education System	$ 1,000	$ 0	$ 1,000
B. Environmental Education			
National Education	1,630	405	2,035
Community Education	1,379	211	1,590
Education Materials	1,494	171	1,665
Sub-Total	$ 5,503	$ 787	$ 6,290
C. Communications Services	$ 81	$ 299	$ 380
D. Evaluation and Research	853	133	986
E. Administration Services	60	145	206
Sub-Total	$ 994	$ 577	$ 1,572
TOTAL	$ 6,497	$ 1,364	$ 7,862

By Month

	Per Month	Cumulative
January	$ 205	$ 205
February	274	479
March	528	1,007
April	665	1,672
May	696	2,368
June	719	3,087
July	808	3,895
August	790	4,685
September	797	5,482
October	814	6,296
November	784	7,080
December	782	7,862
ANNUAL TOTAL	$ 7,862	$ 7,862

Control System, with the External Evaluation System and with all outside users and suppliers of PBEC related information (see Fig. 1 & 6). Many aspects of the design of the information system will automatically be structured as other specific elements of the MCS are completed. As an example, when final formats are developed for the Five Year Forecast, Division Operating Projections, and the Annual Program Plan, it will be possible to specify the exact information that is needed for planning. When the Internal Operations, Production, and Distribution Control Programs are complete it will be possible to specify the exact information that must be supplied to support operations. (See Exhibit 2 for examples of preliminary work in this area). When the Internal and External Evaluation Programs are ready, it will be possible to specify what types of data are needed for evaluation. These analyses will define the internal information processes for PBEC. An additional input/output analysis will pinpoint what types of data normally must come into PBEC, and what types of information must normally be supplied by PBEC. Thus all normal information inputs, internal processes, and outputs will be supplied by the PBEC Management Information System when it is operational.

When implemented, the PBEC Management Information System will assist the staff in meeting its operational and reporting requirements by defining and using a systematic process to produce required products. The process is as important, or more important, than the product in the case of evaluation and planning. Figure 7 is a schematic flow diagram of the M/S process and product.

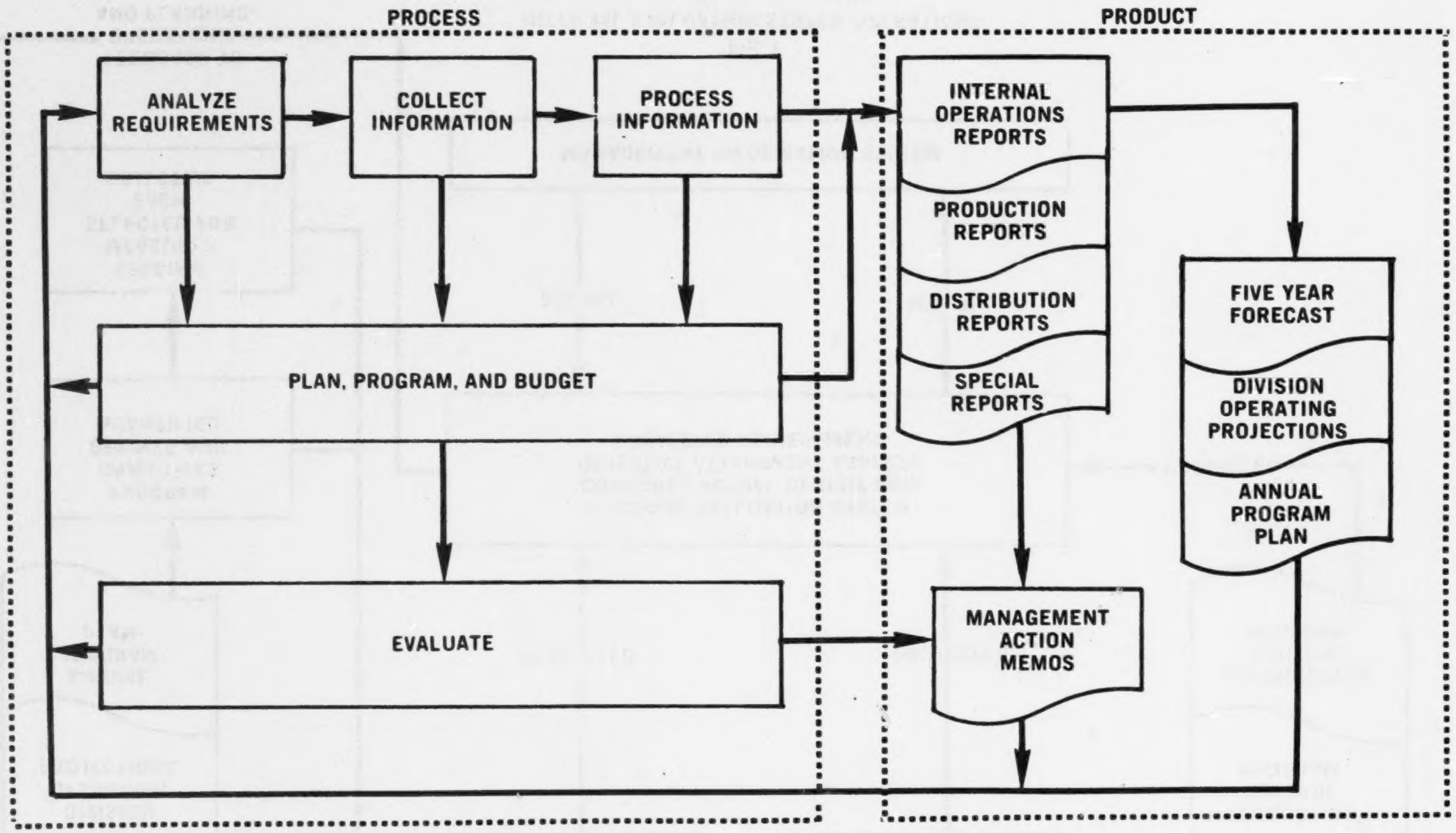

PROCESS
PRODUCT
ANALYZE REQUIREMENTS
COLLECT INFORMATION
PROCESS INFORMATION
PLAN, PROGRAM, AND BUDGET
EVALUATE
INTERNAL OPERATIONS REPORTS
PRODUCTION REPORTS
DISTRIBUTION REPORTS
SPECIAL REPORTS
FIVE YEAR FORECAST
DIVISION OPERATING PROJECTIONS
ANNUAL PROGRAM PLAN
MANAGEMENT ACTION MEMOS

Fig. 6
MANAGEMENT INFORMATION SYSTEM PROCESS AND PRODUCT

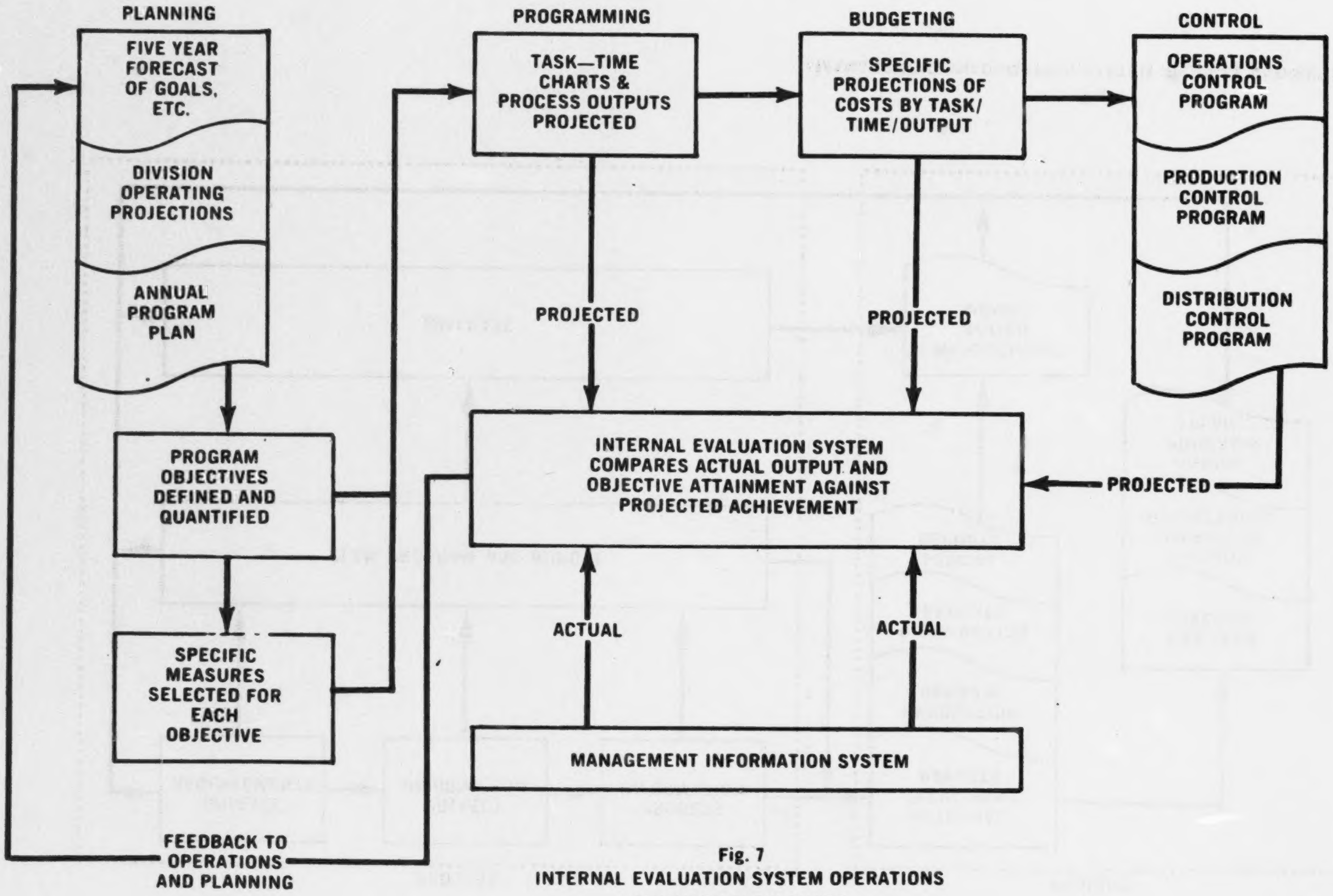

PLANNING
FIVE YEAR FORECAST OF GOALS, ETC.
DIVISION OPERATING PROJECTIONS
ANNUAL PROGRAM PLAN
PROGRAM OBJECTIVES DEFINED AND QUANTIFIED
SPECIFIC MEASURES SELECTED FOR EACH OBJECTIVE
FEEDBACK TO OPERATIONS AND PLANNING
PROGRAMMING
TASK—TIME CHARTS & PROCESS OUTPUTS PROJECTED
BUDGETING
SPECIFIC PROJECTIONS OF COSTS BY TASK/ TIME/OUTPUT
CONTROL
OPERATIONS CONTROL PROGRAM
PRODUCTION CONTROL PROGRAM
DISTRIBUTION CONTROL PROGRAM
PROJECTED
PROJECTED
PROJECTED
INTERNAL EVALUATION SYSTEM COMPARES ACTUAL OUTPUT AND OBJECTIVE ATTAINMENT AGAINST PROJECTED ACHIEVEMENT
ACTUAL
ACTUAL
MANAGEMENT INFORMATION SYSTEM

Fig. 7
INTERNAL EVALUATION SYSTEM OPERATIONS
SUMMARY FLOW CHART

THE PROCESS

In the MIS, a standardized process provides a method for analyzing the requirements for administration, project and program planning, coordination, and evaluation; devises techniques for collecting the required information; provides instructions and a structure for processing and storing required data; develops and documents some basic procedures for planning, programming, and budgeting; develops a data coding structure and information processing procedures to support evaluation; and suggestions methods by which acquired data can be used for decision-making and for improving the quality of each succeeding year's Annual Program Plan. To provide the required information to support the continuing activities of PBEC, a minimum of five major process steps must be designed into a MIS:

a) Analysis of Data Requirements
b) Information Collection
c) Information Processing
d) Planning, Programming, and Budgeting
e) Evaluation

a. Analysis of Data Requirements

Before designing and implementing an MIS, it is necessary to determine what specific types and units of information are going to be required to support the continuing planning, coordination, and evaluation activities. Program (functional) analysis offers a convenient place to start on this process. Each program that is part of the Annual Program Plan should be analyzed closely to determine its objectives and function elements, and to identify qualitative or quantitative measures that should be used to determine if the project is successfully fulfilling its mission.

Similarly, the Internal Evaluation Program should be analyzed to determine what information is needed to support it throughout an annual operating cycle.

The internal operations information requirements also should be closely examined. This type of analytical procedure should be applied to all aspects of the PBEC operation until most information requirements have been identified.

b. Information Collection

When the analysis of information requirements has been completed, it is necessary to determine the best available sources of data (data source analysis) and information to meet these needs, and to improvise alternate methods of data collection (such as surveys) when needed data are not readily available. Contact must be made with each participating element of the PBEC Education System to develop cooperative data agreements and to arrange for periodic submissions of data to PBEC, either on existing forms or on special data collection forms if existing forms are inadequate.

c. Information Processing

As a result of PBEC's operational analysis, information user analysis, and data source analysis, specific data processing steps and procedures can be structured that will assure that the best available data are delivered to the required user on a timely basis and in the required format. In some cases, the gathering and processing of information will be quite simple. It may only require that a local station submit a quarterly report on community environmental action. Another processing step might require card punching and computerized PERT analyses of production scheduling and progress. These examples should indicate that special processing techniques and procedures must be devised to meet a wide range of PBEC functional and operational requirements for data and information.

d. Planning, Programming, and Budgeting

The information that has been identified, collected, and processed can be used initially for planning, programming, and budgeting. During this process, a specific task-time chart would be developed for each program. This chart would define the most important tasks to be undertaken and would establish time guidelines for completing tasks. After this had been dome the specific tasks could be programmed and budgeted by predicting the process outputs that will be obtained at a specific point in time for a given expenditure of funding; for example, a community environmental action project might involve 100 participants within a 2-month period at a cost of $4400. This type of planning, programming, and budgeting defines and quantifies projections against which a project or series of projects can be evaluated.

e. Evaluation

Evaluation places a strong requirement on the MIS. PBEC must have data that will allow it continually to evaluate program objectives, program approaches, specific projects, combinations of projects, internal operations, production of shows and materials, distribution and use of shows and materials, environmental attitudes of the community, and so on.

The lowest order of internal evaluation, which is currently built into the PBEC Management System, is evaluation of whether or not functions are meeting their stated objectives. This process requires that the programmed and budgeted outputs, expenditures, and completion data that were planned for each function (and documented on MIS report forms) be periodically analyzed to see if actual and planned accomplishments coincide.

Other more complex and comprehensive methods of evaluation can be supported by the MIS, once they are defined as an integral part of PBEC's overall program.

THE PRODUCT

The PBEC Management Information System product can be defined as a series of periodic internal operations, production, and distribution reports; annually revised program plans, and most important, a continuing reminder to take the appropriate management action suggested by the process and the reports. Some examples of the types of reports that might be used in the PBEC Management Information Systems are included in Exhibit 3.

4.3.2 PBEC Internal Evaluation System

The Internal Evaluation System is also closely associated with every element in the overall PBEC Management System. It takes its focus from the goals and objectives that are established during planning. (See Exhibit 1) It analyzes whether or not these goals and objectives are efficiently being accomplished during operations based on information fed from the three primary control subsystems. It is also structured to interact with the external evaluation processes and to jointly determine the best future ways to allocate PBEC resources. This use of evaluation information for restructuring of five year goals and modifying next year's program objectives will effectively start the recycling of the planning, operations and evaluation cycles (Figure 7), and will subsequently close the Management Control System loop.

Specifically, the objectives of the PBEC Internal Evaluation System are to:

A. Identify, locate and gather data required to evaluate:

   1. PBEC Internal Operations
   2. External Production Activities
   3. External Distribution Activities

B. To establish a process and methodology for performing periodic internal evaluations and for combining and anlyzing the results of internal and external evaluation.

C. To provide PBEC mangement with information and anlyses needed to improve continuing internal and external operation and to reallocate resources as necessary to improve overall program efficiency, effectiveness, and impact.

The approach for developing and utilizing internal evaluation techniques is to establish a time phased sequence of pragmatic evaluation activities that are to be undertaken during the first operational year, and to specify the methods that will be employed to evaluate these activities. For example, in the first year of operation most of PBEC's efforts will be concentrated on operations activities necessary for producing products for distribution. Consequently, evaluation of operations (including production) processes will necessarily receive more attention in the first year than evaluation of the distribution process, or evaluation of the impact of the product on the target audiences. Similarly, simple evaluation tools such as ratio analyses will initially be utilized while more sophisticated internal and external evaluation techniques, such as cost-effectiveness and operations research, are being developed and tested during the first year for use in succeeding years.

The PBEC Internal Evaluation System operations will be based on PPBS principles. The system will be used to determine how efficiently specific goals and objectives are being met, and to evaluate alternative methods for achieving goals and objectives. As an example, there are at least six functional program categories within PBEC whose objectives can be quantified, measured, and evaluated:

a. T.V. and Radio Program Production

b. Development and Utilization of Environmental Education Materials

c. Support of Local Environment Education & Action

d. Internal and External Evaluation

e. Provision of Environmental Information Services

f. Internal Administration

When the Internal Evaluation System becomes operational, the following sequence of events will take place (see Figure 7). One or more objectives will be quantified for each major functional area. Measures will be specified for each objective. The level of objective achievement will be established for each objective measure. The time at which each objective will be attained, or each interim process output will occur, will be shown on a task-time Gannt chart. The amount of expenditures to achieve this output will be predicted (part of the management system control programs) and documented. Then operations will begin. The Management Information System will then collect data concerning actual time, output, expenditures, and produce reports that compare actual vs. projected achievement in each area. Internal evaluation can then begin by performing a simple ratio analysis of plan to actuality, and determining the reasons for significant successes or failures. These periodic evaluations will be immediately used by first-line managers to improve their operations, and by second-line managers to assure that first-line managers are taking corrective action as applicable. Later, these simple ratio analyses can be supplemented by cost-effectiveness and cost-benefit analysis as results of external evaluation become available.

At this point, it will be possible to not only improve operations through evaluation, but to determine how cost-effectively objectives are being met, and to assess whether or not valid objectives have been specified.

This internal evaluation process has already been initiated with the development of PBEC goals and objectives. During the coming year it will become more detailed and more sophisticated until it eventually becomes the analytical element of the PBEC Management System, which is in fact a Planning-Programming-Budgeting System (PPBS).

4.3.3. Reports to Support Planning, Operations and Evaluation

Planning, operations, and evaluation activities can be tied together with a series of reports.

Preliminary analysis suggests that at least five major categories of reporting formats will have to be developed to support PBEC planning, operations and evaluation activities:

Category	Reports
Category I	Planning Reports
	Five Year Forecast Division Operation Projections Annual Program Plan
Category II	Internal Operations Reports
	Function (Project) Reports Division Reports Management Reports
Category III	Production Reports
	Production Plans/Programs Reports Production Progress Reports
Category IV	Distribution Reports
	Environmental Materials Reports Environmental Action Reports
Category V	Program Analysis and Evaluation Reports
	Internal Operations Analysis Production Analysis Distribution Analysis Overall Program Analysis Special Internal & External Analysis

How these reports will relate to each other and to PBEC operations and planning is shown in Figure 8. Category I Reports have been adequately discussed in previous parts of this section. Category II Reports (Internal Operations) are those that report monthly on planned vs. actual achievement in a specific functional or project area within a PBEC division (Functional Reports); that report on all activities within a specific PBEC Division (Division Reports); and that summarize for PBEC Management all internal and external activities that are monitored regularly (Management Reports).

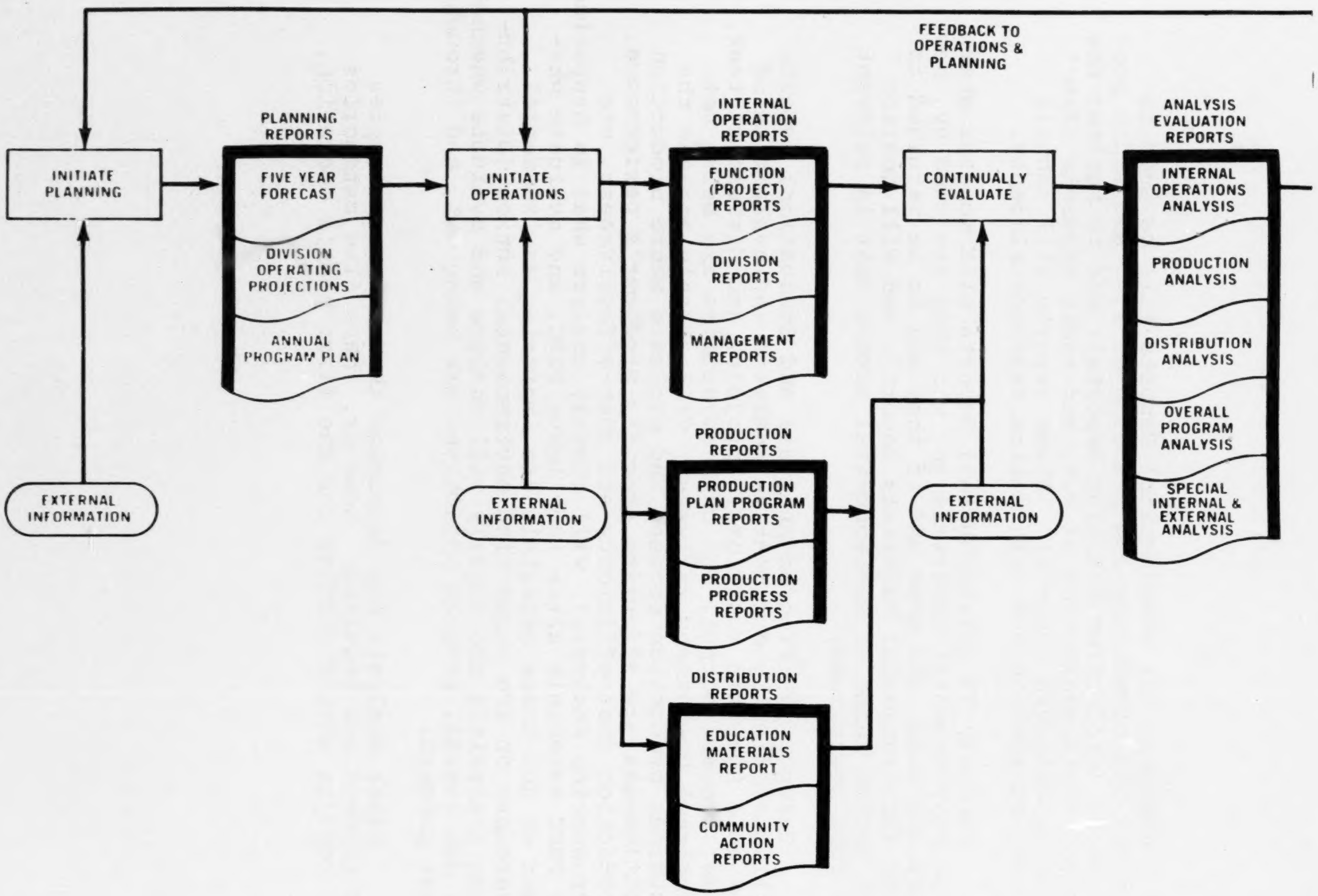

FEEDBACK TO OPERATIONS & PLANNING
INITIATE PLANNING
EXTERNAL INFORMATION
PLANNING REPORTS
FIVE YEAR FORECAST
DIVISION OPERATING PROJECTIONS
ANNUAL PROGRAM PLAN
INITIATE OPERATIONS
EXTERNAL INFORMATION
INTERNAL OPERATION REPORTS
FUNCTION (PROJECT) REPORTS
DIVISION REPORTS
MANAGEMENT REPORTS
PRODUCTION REPORTS
PRODUCTION PLAN PROGRAM REPORTS
PRODUCTION PROGRESS REPORTS
DISTRIBUTION REPORTS
EDUCATION MATERIALS REPORT
COMMUNITY ACTION REPORTS
CONTINUALLY EVALUATE
EXTERNAL INFORMATION
ANALYSIS EVALUATION REPORTS
INTERNAL OPERATIONS ANALYSIS
PRODUCTION ANALYSIS
DISTRIBUTION ANALYSIS
OVERALL PROGRAM ANALYSIS
SPECIAL INTERNAL & EXTERNAL ANALYSIS

Fig. 8
MANAGEMENT INFORMATION SYSTEM OPERATIONS
SUMMARY FLOW CHART

Category III (Production) Reports will be used to monitor the scheduling and planning of T.V. and Radio productions (Production Planning Reports); and to monitor the actual field production of T.V. and radio segments (Production Progress Reports). These reports will contain strong scheduling and information feedback elements.

Category IV (Distribution) Reports will monitor where PBEC environmental materials go, who they are used by, how they are used, and when and if they are to be returned to PBEC (Environmental Materials Report); and will monitor the entire range of environmental action that is relevant to PBEC operations.

Category V (Program Analysis and Evaluation) Reports will periodically document an analysis and evaluation of how well specific functional (project) and divisional task, time, process output, and cost objectives are being met (Internal Operations Analyses); will closely analyze the external production process and evaluate where production bottlenecks are affecting specific producer's performance, production cost-efficiency and cost-effectiveness, etc. (Production Analysis); will closely analyze what is happening to PBEC materials after they leave PBEC, and evaluate whether or not these materials are improving environmental awareness or are supporting environmental action (Distribution Analysis); and finally will analyze and evaluate whether or not overall program objectives are being met, and through what process.

Later analysis may determine that other categories of reports are required: however, these five categories of reports should suffice for the first year's operation.

B. ORGANIZATION STAFFING AND OPERATIONS

Phase I Organization and Staffing

The Office of Education provided a Phase I planning grant to the Corporation for Public Broadcasting to establish a Public Broadcasting Environment Center (PBEC), and to produce a plan of action for heightening environmental awareness and providing environmental education through the use of the public broadcast media.

The organization that was utilized during this initial planning phase (June-November 1970) is presented in functional format in the included diagram, and a narrative description of key duties of each functional group follows.

The Office of Education (HEW) established requirements to be met during the planning period, and acted as educational advisors throughout the period. The Corporation for Public Broadcasting assisted PBEC in the development of administrative policies and served as an advisor on public broadcast media matters. The Advisory Council advised PBEC on broad concepts such as defining the over-all role of PBEC, and how resources could be most effectively utilized. The Planning Advisory Committee consisted of professionals with expertise in environment, education, broadcasting, etc. They provided assistance in determining operational objectives and developing specific program plans. Consultants were retained to assist in development of specific subject area materials such as internal and external evaluation systems, target audience surveys, environmental manpower training programs, etc. The PBEC Planning Staff, under the direction of the PBEC Executive Director and Deputy Director, produced specific action plans in the areas of environmental education, community environmental protection, and administration.

Brief biographical sketches of PBEC Planning Staff members and a list of consultants and contracts is included as Exhibit 1. Figure 1 shows PBEC organization functionally for Phase I. Figure 1.a shows Phase I organization by name and assignment.

Phase II Organization and Staffing

Upon award of the Phase II grant, PBEC must move from a planning organization to an operations organization that has the capability to fulfill the overall PBEC goal and specific objectives set forth in the Phase I Final Report.

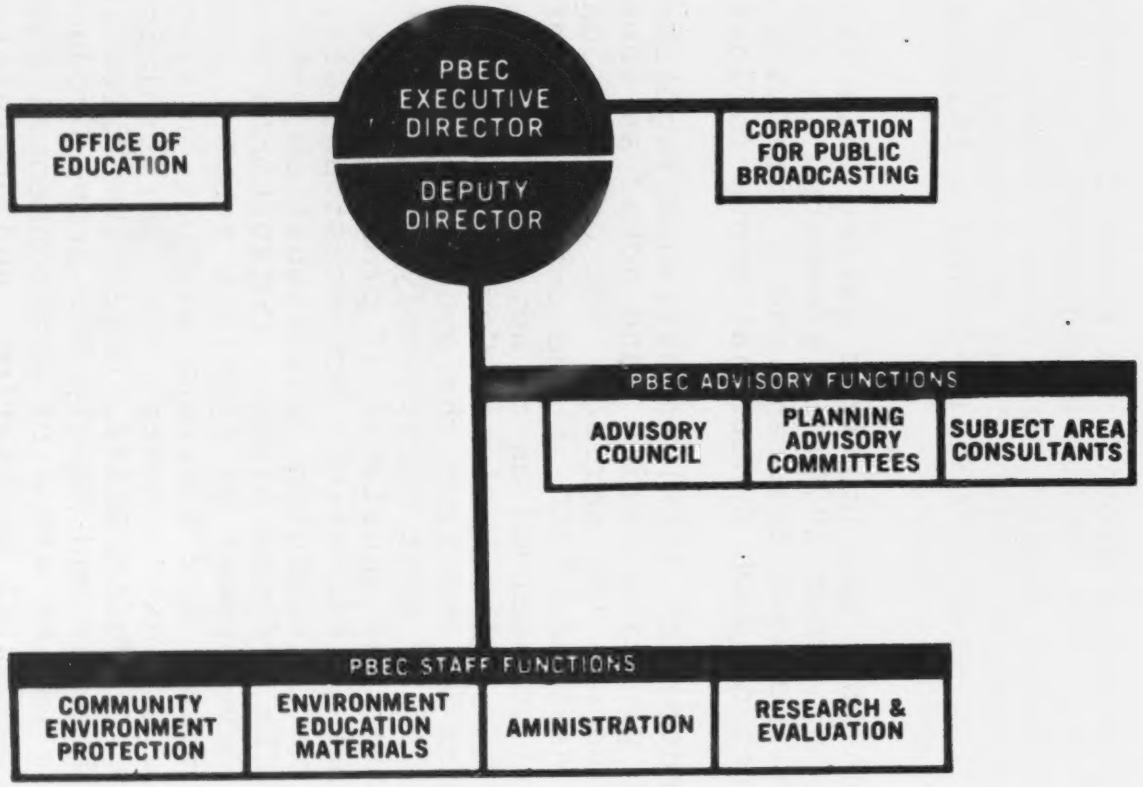
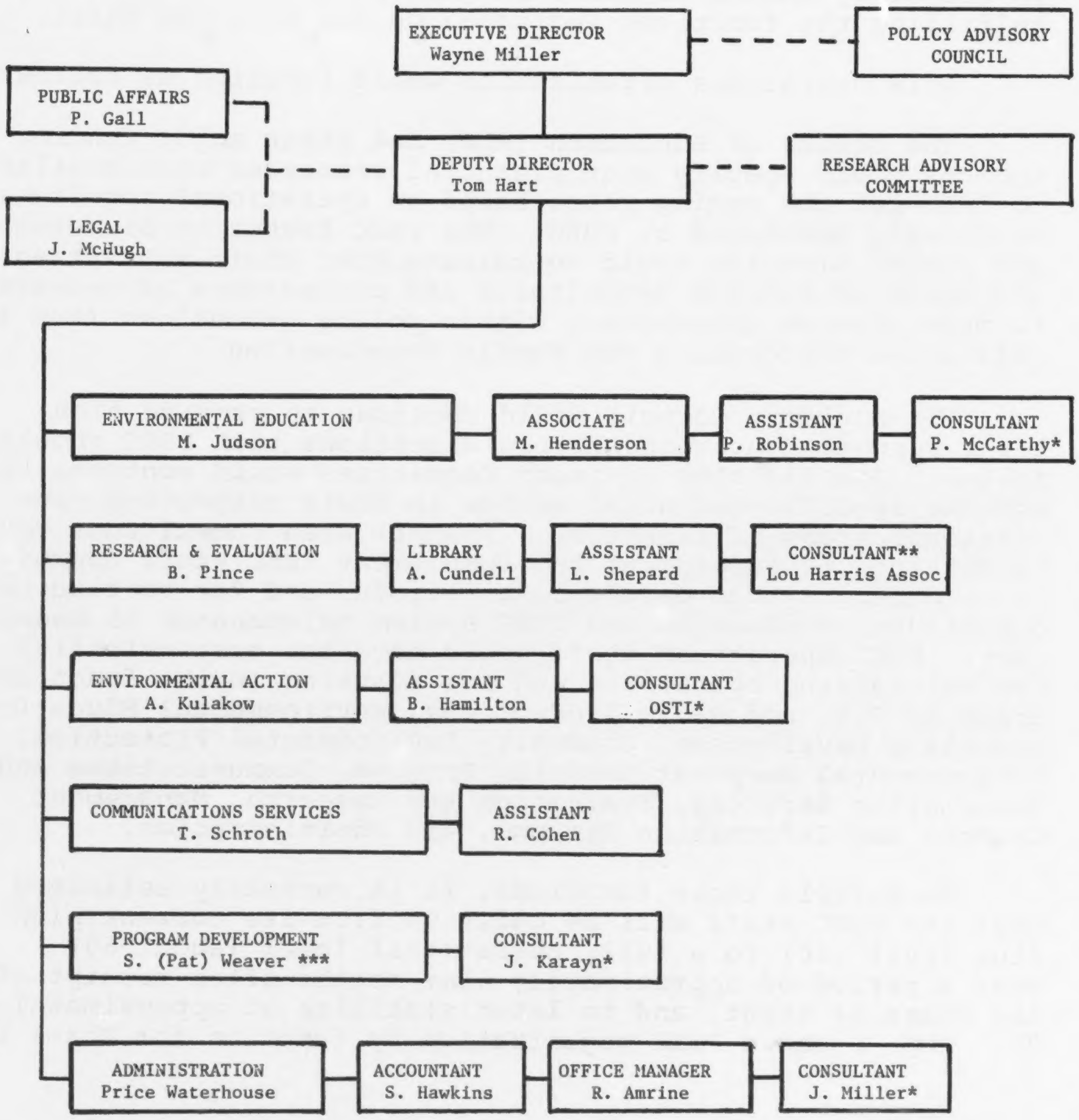

PBEC EXECUTIVE DIRECTOR
DEPUTY DIRECTOR
OFFICE OF EDUCATION
CORPORATION FOR PUBLIC BROADCASTING
PBEC ADVISORY FUNCTIONS
ADVISORY COUNCIL
PLANNING ADVISORY COMMITTEES
SUBJECT AREA CONSULTANTS
PBEC STAFF FUNCTIONS
COMMUNITY ENVIRONMENT PROTECTION
ENVIRONMENT EDUCATION MATERIALS
AMINISTRATION
RESEARCH & EVALUATION

Fig. 1
PBEC ORGANIZATION
PHASE I PLANNING
(June-November 1970)

PBEC ORGANIZATION PHASE I


EXECUTIVE DIRECTOR
Wayne Miller
POLICY ADVISORY COUNCIL
PUBLIC AFFAIRS
P. Gall
DEPUTY DIRECTOR
Tom Hart
RESEARCH ADVISORY COMMITTEE
LEGAL
J. McHugh
ENVIRONMENTAL EDUCATION
M. Judson
ASSOCIATE
M. Henderson
ASSISTANT
P. Robinson
CONSULTANT
P. McCarthy*
RESEARCH & EVALUATION
B. Pince
LIBRARY
A. Cundell
ASSISTANT
L. Shepard
CONSULTANT**
Lou Harris Assoc.
ENVIRONMENTAL ACTION
A. Kulakow
ASSISTANT
B. Hamilton
CONSULTANT
OSTI*
COMMUNICATIONS SERVICES
T. Schroth
ASSISTANT
R. Cohen
PROGRAM DEVELOPMENT
S. (Pat) Weaver ***
CONSULTANT
J. Karayn*
ADMINISTRATION
Price Waterhouse
ACCOUNTANT
S. Hawkins
OFFICE MANAGER
R. Amrine
CONSULTANT
J. Miller*

* CONSULTANT
** CONTRACT
*** CPB FELLOW

FOR COMPLETE LIST SEE APPENDIX VI B

Figure 1.a.

In order to do so, the PBEC organization that is implemented in the early months of Phase II must have the capability of fulfilling the functions indicated on the enclosed Chart. 1/

This operations organization would function as follows:

The Office of Education (HEW) and other major funding sources would specify what financial resources were available to PBEC for the coming year, based on operational requirements previously developed by PBEC. The PBEC Executive Director and Deputy Director would coordinate PBEC staff activities and those of outside consultants and contractors as necessary to meet program objectives, within policy guidelines from the affiliated Corporation for Public Broadcasting.

The Advisory Council would continue to provide high level support concerning future directions that PBEC should follow. The Planning Advisory Committees would continue to provide specific technical advice in their respective professional areas of expertise. Subject area Consultants would be retained to supplement and complement PBEC staff capabilites during system development periods, and for continuing operations, evaluation and PBEC system maintenance as necessary. PBEC Operations Staff would have the responsibility for maintaining operations and for planning in the functional areas of T.V. and Radio Productions, Environmental Education Materials Development, Community Environmental Protection, Environmental Manpower Training Program, Communications and Information Services, Evaluation and Research, Management Control and Information Systems, and Administration.

To fulfill these functions, it is currently estimated that the PBEC staff will be built up from its current planning level (20) to a fully operational level (about 60) over a period of approximately nine months after receipt of the Phase II grant, and to later stabilize at approximately 70. Fig. 2 shows PBEC organization by function for Phase II.

1/ It should be stressed that these functional groupings don't design an "organization chart." The PBEC organization chart will be finalized in conjunction with staff selection during Phase II; a preliminary organization chart appears in Appendix VI A 1.

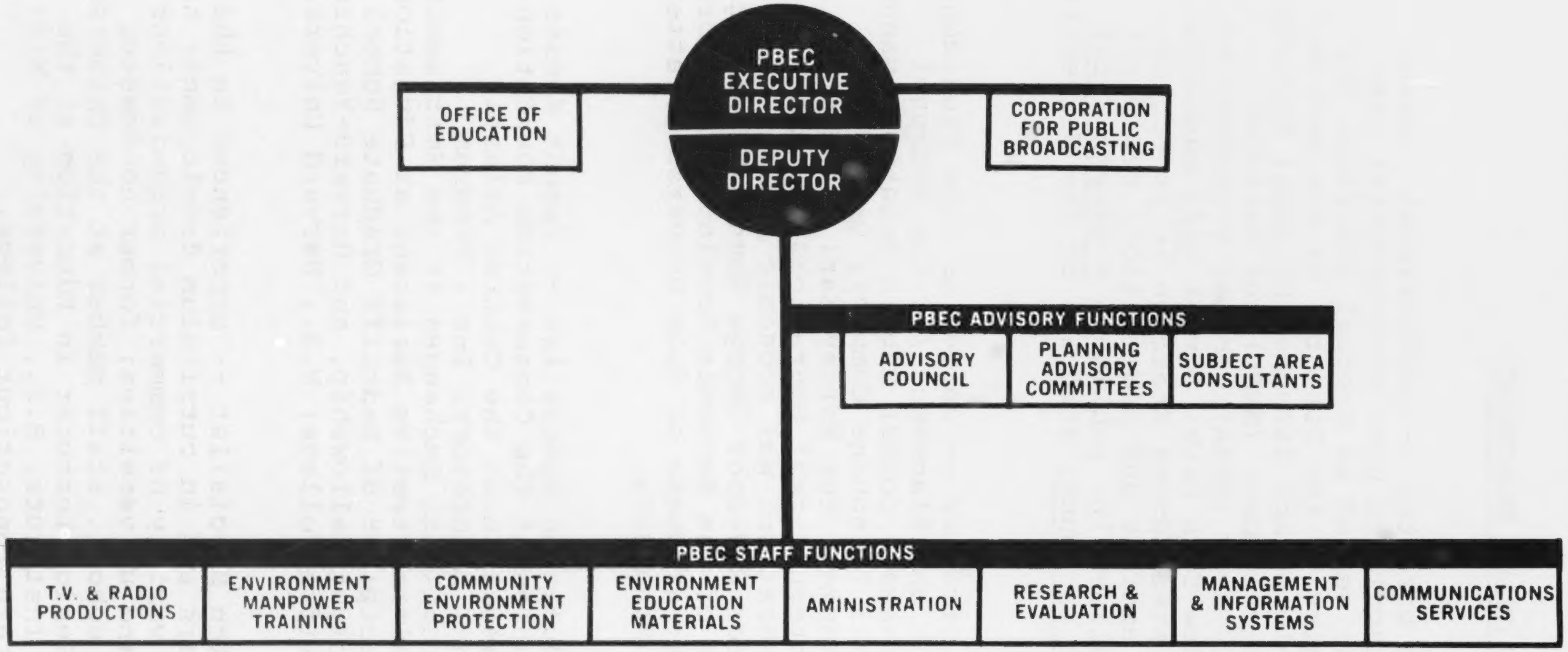

PBEC EXECUTIVE DIRECTOR
DEPUTY DIRECTOR
OFFICE OF EDUCATION
CORPORATION FOR PUBLIC BROADCASTING
PBEC ADVISORY FUNCTIONS
ADVISORY COUNCIL
PLANNING ADVISORY COMMITTEES
SUBJECT AREA CONSULTANTS
PBEC STAFF FUNCTIONS
T.V. & RADIO PRODUCTIONS
ENVIRONMENT MANPOWER TRAINING
COMMUNITY ENVIRONMENT PROTECTION
ENVIRONMENT EDUCATION MATERIALS
AMINISTRATION
RESEARCH & EVALUATION
MANAGEMENT & INFORMATION SYSTEMS
COMMUNICATIONS SERVICES

Fig. 2
PBEC ORGANIZATION
BY FUNCTIONS
PHASE II OPERATIONS
(1 January 1971)

PHASE I PERSONNEL, CONSULTANTS, AND CONTRACTS

PBEC STAFF PERSONNEL

Wayne Miller, Executive Director -- professional photojournalist long associated with environmental problems and programs; served as Special Assistant for Environmental Affairs to the Director of the National Park Service; developed and directed National Environmental Education Development (NEED) and National Environmental Study Area (NESA); former President of Magnum Photos in New York City; former Life magazine photographer; assisted Edward Steichen in producing The Family of Man exhibit and publication; recipient of a Guggenheim Fellowship; published A Baby's First Year and The World is Young; graduate of the University of Illinois.

Thomas T. Hart, Deputy Director -- served as Vice President for Job Procurement and Placement for the National Alliance of Businessmen; former Public Relations Manager of the Michigan Bell Telephone Company; Director of New Business Development for Harley Earl Associates, and Director of International Operations for the Toro Manufacturing Corporation; was economic adviser and campaign manager for Governor George Romney of Michigan and Vice President of the Economic Development Corporation of greater Detroit; graduate of Yale University; attended the University of Minnesota.

Martha T. Henderson, Education Specialist -- recent Senior Associate in education at The Conservation Foundation; former Research Associate at the Central Atlantic Regional Educational Laboratory, Inc., Program Director for International Exchanges at the Smithsonian Institution, and Administrative Assistant at Education Services, Inc.; recipient of Radcliff Graduate School fellowships, Fulbright fellowship, and Harvard-Yenching grant; B.A., Radcliffe College; M.A., Harvard University.

Madison Judson, Education Specialist -- experienced in the teaching of teachers and in curriculum development; has worked for a wide variety of commercial organizations and institutions and universities; former headmaster of an independent school, staff member at the University of Michigan, and Senior Lecturer in Education at the Oxford University Institute; B.S., University of Wisconsin; M.S., Western Connecticut College.

Bryce H. Hamilton, Education Specialist -- served as High School Coordinator of the April 1970 Environmental Teach-In; former Peace Corps volunteer, information officer for the American Freedom from Hunger Foundation, and press assistant for the 1968 Olympic Games; graduate of the University of Iowa.

Allan M. Kulakow, Research Associate -- served as Director of Language Training for the Peace Corps; former director of the Washington office of the Center for Research and Education; experienced in theater, radio, educational films and television; recipient of a Fulbright fellowship; B.A., University of Wisconsin; M.A., Harvard University; Fulbright fellowship.

Angela Cundell, Library Director -- former research reporter for National Educational Television, assistant librarian for Congressional Quarterly, and information officer and assistant librarian for the U.S. Information Service in London, England.

Charles Peter Gall, Information Associate -- served as head of the information branch of the Office for Civil Rights in the Department of Health, Education and Welfare; former special assistant/writer for Senators Hugh Scott of Pennsylvania and Thomas H. Kuchel of California; former reporter for the Wall Street Journal; graduate of Princeton University.

Linda Shepard, Assistant to the Research Director -- former research assistant at the Center for Political Research, assistant to the director of the National Action Corps, and political assistant in the McCarthy for President campaign; graduate of Antioch College.

Renee Amrine, Executive Assistant -- former assistant to the editors of National Journal and coordinator of the annual almanac published by Congressional Quarterly; graduate of the University of Wisconsin.

Becky Hannum, Executive Secretary -- served as Executive Secretary to the director of the Department of Cultural Affairs in New York City Parks, Recreation and Cultural Affairs Administration; former Assistant Curator in charge of the Mary Duke Biddle Gallery for the Blind in the North Carolina Museum of Art; graduate of Lake Erie College.

PBEC CONSULTANTS

James L. Aldrich -- Director of Education, The Conservation Foundation, research and development in environmental education and teacher training programs.

Eric Beamish -- Senior Associate, State University of New York Education Communications Center, provided information on the use of public and university resources in promoting statewide environmental efforts.

Ruben S. Brown -- Staff Coordinator, Study of Critical Environment Problems, Massachusetts Institute of Technology, provided information on international environmental programs and education.

Richard L. Cohen -- Former reporter for National Journal and Congressional Quarterly, assisted in institutional survey and proposal preparation and developed environmental education survey of selected educators.

Nancy S. Edwards -- Former teacher in Washington, D.C., and Maryland schools, consulted on program planning in education.

Dr. Daniel Fox -- Principal, Organization for Social and Technical Innovation (OSTI), advised on community action criteria, programs and evaluation environmental health and higher education.

Robert Garthwaite -- Independent television documentary producer, developed a model for the effective utilization of public broadcasting to reach decision-making audiences.

Christine Hobbs -- Former research assistant at National Journal, surveyed commercial network programming on environmental problems.

Charity James -- British elementary school innovator on leave as lecturer at Goldsmith's College, University of London, to serve as guest lecturer at Boston University School of Education, advised on program development.

Donald Jones -- Television and film producer, formerly in charge of Bell System Science Series, consulted on environmental tapes and films in science and technology, helping to establish selection criteria and to identify significant films available.

James Karayn -- Washington bureau chief of National Education Television, identified production facilities and sources for future program development.

Gale Lininger -- Management consultant, advised on the development of personnel policies and practices.

Patrick McCarthy -- Deputy Chancellor of the Massachusetts Board of Higher Education, consulted on overall structure and objectives of PBEC and on environmental education program development.

John Milton -- Ecologist and Deputy Director of the International Division, The Conservation Foundation, advised on national and international environmental concerns and developments.

Robert E. Moore, Jr. -- Student, University of Massachusetts, Amherst; former participant in the innovative "Contemporary University" Project, directed by Joseph Rhodes, supplied information on innovative environmental and film programs at special schools and universities.

Bruce Pince (Space/Defense Corporation contract) -- Director of Basic and Applied Research at the Space/Defense Corporation, former Professor of Industrial Engineering at Wayne State University with 16 years experience in biomedical research and systems development, served as Director of Research.

Peter J. Robinson -- identified desirable behavior changes and organizational program research.

Thomas N. Schroth -- former editor of Congressional Quarterly and National Journal, defined and developed the information retrieval program and the communications systems needed for programming. Editor of PBEC Final Report to OE, November 30, 1970.

Elliot Siegel -- conducted research in the measurable behavior of target audiences.

Sylvester (Pat) Weaver -- Former Chairman and President of National Broadcasting Company; as a Distinguished Fellow of the Corporation for Public Broadcasting, advised on television programming for environmental education.

Gloria Weissberg -- surveyed programs in environmental art, architecture and design.

Thomas W. Wilson, Jr. -- reported on national environmental priorities and action and international conference.

PBEC CONTRACTS

B.M.& M. Associates -- reported on a Denver workshop of the Federation of Rocky Mountain States, Inc., dealing with environmental literacy provided through the use of television.

Center for Research and Education -- prepared a Community Action Program Model for a Hispano Community.

Costley, Miller and Satterthwaithe, Inc. -- designed a system for management control and internal evaluation.

Environmental Resources, Inc. -- surveyed 50,000 teachers, students and citizens who are concerned with environmental problems.

Federation of Rocky Mountain States, Inc. -- conducted an experimental workshop on education and ecological planning.

Louis Harris and Associates -- conducted a national survey of 3,000 TV households to determine the target audiences' environmental awareness, concern and action.

International Research and Technology Corporation -- conducted a review of environmental programs in government, industry, professional groups and other areas not associated with formal education.

Kathryn Lasky -- surveyed and evaluated 400 environmental education films.

Linton, Mields & Coston -- assisted in workshop development and in the preparation of the proposal.

Mathematica -- designed an external evaluation system.

Maurer, Fleisher, Zon & Associates, Inc. -- counseled on public relations activities.

National Association of Educational Broadcasters -- reviewed public television and radio programming on the environment.

George Nelson Associates, Inc. -- surveyed and evaluated the Puget Sound Coalition community environment program.

Charles E. Roth -- surveyed and analyzed significant environmental education programs and materials now available and being developed.

Space/Defense Corporation -- established, directed and coordinated the research program, assisted in developing evaluation techniques and capacity determination.

C. ADMINISTRATIVE POLICIES & PROCEDURES

PART I

Public Broadcasting Environment Center
Personnel Policies & Procedures

Preface

Section A

In this section, an attempt has been made to delineate those policies and procedures which establish standard, logical operating methods and are applicable to the Center's operation during the planning or start-up period. Due to the Center's relationship with the Corporation for Public Broadcasting, certain of their policies were adopted with appropriate changes reflecting PBEC funding relationship with the granting agency.

Section B

This section outlines the additional policies and procedures which will be completed and put into effect when the Center enters an on-going phase of operation. Other procedures and guidelines will be formulated as circumstances indicate.

PART I

CONTENTS

SECTION A

- Personnel Policy Statement
- Employment
- Working Hours
- Travel Expenses
- Employee Benefits
- Absence from Work
- Office Practices
- Employee Records
- Ethical Conduct
- Equal Employment Opportunity & Affirmative Action

SECTION B

- Employee Evaluation
- Termination Procedure
- Employee Indoctrination
- Severence Pay
- Employee Development
- Educational Assistance
- Part-Time Employment
- Outside Employment
- Wage & Salary Program

SECTION B (CON'T)

Conference Planning

Conflict of Interest

Furniture & Equipment Management

Membership in Business & Professional Organizations

Additional Leave Policies

Public Broadcasting Environment Center
Personnel Policies & Procedures

TITLE: Personnel Policy

It shall be the policy of the Center to:

1. Acquire and maintain a work force of high quality and competence relative to the general mission requirements of the Center and its sponsoring and funding agencies.
2. Provide compensation, benefits, and facilities which compare favorably with those prevailing in public and private organizations utilizing similar talents and skills.
3. Recruit, employ, promote, transfer, and terminate employees on the basis of merit, ability, and job requirements without discrimination because of race, color, age, sex, religion, or natural origin.
4. Create and maintain an atmosphere conducive to individual development and advancement consistent with performance, ability, and Center requirements.

Public Broadcasting Environment Center
Personnel Policies & Procedures

TITLE: Employment Policy

Responsibility for employing professional staff members rests with the Executive Director or his designated representatives.

Support personnel hiring will be the responsibility of the Director of Administration or his designated representative with concurrence of the operational supervisor involved.

All applications will be submitted in writing with substantiating documents where appropriate.

Support applicants may be required to pass a skills demonstration, i.e., typing, shorthand, clerical, proficiency.

Employment Procedure

Personnel Requisition - It will be the responsibility of the designated supervisor (i.e., Directors) to complete subject form to contain:

1. project designation
2. summary of duties
3. general qualifications and experience required and/or desirable
4. position classification

and will be approved by the Director of Administration and the Executive Director.

Personnel Action - Upon receipt of the Personnel Requisition it will be the responsibility of the Director of Administration or designated representative (Personnel Office) to accomplish the following:

1. Initiate a search for appropriate applicants
2. Arrange interview appointments with concerned corporate staff
3. Administer clerical test battery (clerical employees only)
4. Collect consensus (preferably with an interview report) and determine interest or no interest
5. a. No interest - appropriate letter and file
   b. Interest - reference checks performed (documentation advisable)
6. Evaluation of above
7. Present completed file, along with general salary recommendation, to the Appropriate Supervisor.

Decision to Hire - Completed file presented to the Director of Administration for sign-off with a general recommendation for salary. Director of Administration presents file to Executive Director for discussion and final approval. A salary determination and approval form will accompany the file.

Personnel Action - Offer letter prepared by Personnel Officer for Director of Administration's or Executive Director's signature. Copy to file.

Acceptance	Rejection
Prepare complete employee file (Staff Employment Form) to be ready for starting date and notify all interested parties.	Some documentation re: reasons and thank you reply.

Physical Examination - Personnel Officer will arrange for examination and secure examination form for file (optional).

Starting Date - Employee indoctrination and forward necessary payroll and benefit forms to Accounting.

Employee File - It will be the responsibility of the Personnel Officer to initiate and maintain a personnel file on each employee (see Employee Records).

TITLE: Employment of Consultants

Individual consultants may be employed by the Center upon justification by the Division or Department Directors with approval by the Executive Director or his designated representative.

The rate of consultation will not exceed $100.00 per day. Consultants shall be entitled to reimbursement for travel expenses in accordance with the regular travel policies of the Center.

In addition to execution of the standard Center Consultant Agreement, the following items should be included if applicable:

1. Project identification for budgeting and accounting purposes.
2. Qualifications statement (resume) of consultant
3. Statement or memo detailing area of activity, amount of time anticipated to accomplish the specified task or product not amplified in the Agreement and any additional information deemed necessary by the Project Director.

TITLE; Employment Interview Expenses

Interview (travel) expenses will be reimbursed to applicants officially invited to visit the Center offices by the Executive Director or his designated representative. Reimbursement will cover only out-of-town applicants and will be paid in accordance with the Center travel policy.

Public Broadcasting Environment Center
Personnel Policies & Procedures

TITLE: Travel Authorization and Reimbursement

A travel authorization form will be prepared by the employee to include such information as to length and purpose of trip, project designation, cash advance, if needed, and accommodations and arrangements required. Form will be approved by the appropriate supervisor and transmitted to the Director of Administration or his designated representative (travel function). Travel will make all arrangements and reservations and provide traveler with cash advance, tickets, confirmations, etc., and forward a copy of authorization form to Accounting.

Upon completion of trip, employee will prepare an expense voucher for supervisors approval and forward to Accounting for audit and payment.

Public Broadcasting Environment Center
Personnel Policies and Procedures

TITLE: TRAVEL

The following travel policies are applicable to all staff members who travel on Center business. Air Travel cards will be provided to staff members engaged in extensive travel. A telephone credit card may be issued if an employee is expected to make extensive use of the telephone for Center business while on travel status. No other credit cards are authorized.

Transportation

Airplane, railroad, bus, automobile, taxi and other forms of transportation should be utilized with a view to efficiency, cost, and travel purpose.

Air Travel - Tourist or economy class accommodations should be utilized for all air travel.

Railroad - First class tickets are authorized on overnight trips or when lower class accommodations do not provide adequate service.

Limousine or Bus - To be used in preference to rental car or taxi where easily and practicably available.

Rental Car - Lowest rent car (in most cases compacts) to be hired. Employees should take advantage of 20 percent organizational discount (air travel card may be utilized for this purpose) and of extended-period rates, and should ensure deduction of gas-and-oil purchases where deductible. Full liability and damage insurance may be ordered, but no car should be hired for more than three consecutive days without prior approval.

Taxi - To be used primarily for short distances and not where other forms of public transportation are available.

Personal cars may be utilized where more effective and economical than available public transportation. Mileage will be paid at 10¢ per mile for most direct route, plus tolls and parking charges. Personal cars may also be utilized for personal convenience, however, lowest appropriate public charges may be reimbursed.

Travel insurance is provided for all staff members through a group policy. Additional travel insurance premiums paid by a staff member will not be reimbursed by the Corporation.

Living Expenses

1. Hotel and motel rates vary according to the locale and accommodations. Reasonable single-room accommodations near the place of activity are authorized. Suites or other high rate rooms should not be occupied unless they are also needed as meeting rooms or for two or more members concurrently. Business hotels and highway motels should be used as much as possible rather than deluxe or residential establishments.

2. A maximum allowance of $10.00 per day is established for breakfast, lunch and dinner.

3. Service items such as cleaning and pressing, laundry and spot removing, telephone and telegraph, may be charged during travel. Personal items such as haircuts, toiletries, shoe shines, newspapers and clothing purchases are not reimbursable whether during travel or otherwise.

4. Tipping should always be reasonable and normally may not exceed 15 percent of the basic transportation or meal charge nor be higher than fifty cents ($.50) for baggage handling or room showing.

Travel expenses will be reimbursed to staff members only upon receipt of detailed statement of expense reports, accompanied by itemized bills and receipts for transportation, hotels, etc. Expense reports should be prepared semi-monthly and submitted to the business office on the 16th and 31st of each month. When a staff member has been on an extended trip, the expense report should be filed within three business days of the completion of the trip.

TITLE: Insurance Program

Regular full-time employees of PBEC, under agreement with CPB, are eligible for the following insurance benefits:

Blue Cross (Hospital Coverage)
Blue Shield (Doctors Fees)
Major Medical Coverage
Life Insurance
Accidental Death and Dismemberment
Travel Accident Insurance
Long-Term Disability Insurance

Costs for the above coverages for the employee are paid for by the Center. Dependent coverage for Blue Cross, Blue Shield, and Major Medical is available and is paid for by the employee through payroll deduction.

Specific details of all of the above plans are delineated in the CPB Policies and Benefits booklet distributed to all employees.

Public Broadcasting Environment Center
Personnel Policies and Procedures

TITLE: Holidays

Offices of the Center will be officially closed in observance of the following holidays:

New Years Day	Labor Day
Washington's Birthday	Veteran's Day
Memorial Day	Thanksgiving Day
Independence Day	Christmas Day

plus an additional day during the Christmas season.

When holidays fall on the weekend, the Center will be guided by the practices of CPB, the sponsoring agencies, and local custom.

TITLE: Retirement Program

Retirement Plan

Regular full-time employees of PBEC are eligible for participation in TIAA/CREF, an educational service organization providing retirement and insurance benefits to educational institutions and other non-profit corporations and foundations. Eligibility, contributions, and other details of the TIAA/CREF program are contained in the CPB Policies and Benefits Booklet.

Social Security

All regular full-time employees of the Center are covered under the Social Security program; FICA payments are deducted from employee earnings, and company contributions are made by CPB.

Public Broadcasting Environment Center
Personnel Policies and Procedures

TITLE: Vacation Policy

Staff employed prior to April 1, after working on the job for six (6) months, are eligible for three (3) weeks vacation in that year. Staff employed during the period April 1 to June 30, and after working six (6) months on the job, would be eligible for a one (1) week vacation in the year employed.

Staff employed during the period July 1 to December 31 would not be entitled to any vacation in the year employed.

No staff member may take any vacation during the first six (6) months of employment, nor may he accrue any vacation if his employment terminates within the first six (6) months of employment.

Staff members who have worked more than six (6) months and thereby have fallen into the regular pattern of vacations are eligible to receive the following monetary credit (at the current salary rate) for vacations upon termination:

a) If termination takes place on or after January 1 and prior to April 1, 25 percent of normal vacation.

b) If termination takes place on or after April 1 and prior to July 1, 50 percent of normal vacation.

c) If termination takes place on or after July 1 and prior to September 1, 75 percent of normal vacation.

d) If termination takes place on or after September 1, 100 percent of normal vacation.

No credit is accrued during the remainder of a calendar year in which the staff member has taken his full vacation regardless of time of year in which he has taken it.

Except at the request of management, no vacation may be taken in any but the calendar year in which it is earned, and no vacation credit carries over from one year to the next.

Except at the request of management, no vacation period of less than one (1) week may be taken.

Neither part-time employees nor short-term project or consultant personnel are eligible for vacations.

When an authorized holiday occurs within a vacation period, the staff member will receive additional vacation credit by as many days as there were holidays.

Public Broadcasting Environment Center
Personnel Policies and Procedures

TITLE: Sick Leave

All staff members are entitled to a maximum of ten (10) days per year in sick leave. In emergency or other extraordinary situations, additional sick leave may be authorized at the discretion of the Executive Director. Sick leave includes absence from work due to personal illness or injury, preventive medical or dental care, family funeral, or other special circumstances approved by immediate supervisors. Sick leave may be carried over indefinitely but will not be paid for upon resignation or other termination.

Public Broadcasting Environment Center
Personnel Policies and Procedures

TITLE: Office Practices - Long Distance Telephone Calls

In advance of a central switchboard operation it will be the responsibility of each staff member individually, or if more convenient, through the department secretary, to maintain a record of all long distance calls made each month. Firm or individual called, number and project designation or other business purpose noted.

Personal long distance calls will be billed to the employee.

Public Broadcasting Environment Center
Personnel Policies and Procedures

TITLE: Attendance and Working Hours

Center office hours at 9:00 a.m. to 5:30 p.m., Monday through Friday. It will be the responsibility of each employee to adhere to this schedule as closely as possible. In the event of necessary absence, circumstances should be conveyed to supervisor as soon as possible, preferably in advance of anticipated absence.

Public Broadcasting Environment Center
Personnel Policies and Procedures

TITLE: Time Reporting

It will be the responsibility of each employee to complete a time reporting form (see Exhibit A, p. 402) on a daily basis for each payroll period. All working time will be reported on a project or program basis for accounting and budget purposes. All absences will be recorded with the reason for absence noted. Time will be recorded to the nearest 1/2 hour.

Public Broadcasting Environment Center
Personnel Policies and Procedures

TITLE: Extended Work Schedule - Compensation

Support Staff

Payment for overtime worked in excess of regular working hours will be paid at the rate of 1-1/2 times the regular hourly rate. All overtime will have the advance approval of the Executive Director or his designated representative.

Professional Staff

Due to the nature of the work, attendance at meetings, extensive travel, week-end conferences, etc., a considerable amount of overtime may be necessary in discharging responsibility. Under exceptional circumstances the Executive Director may approve some adjustment in terms of time off.

Public Broadcasting Environment Center
Personnel Policies and Procedures

TITLE: Employee Records

It will be the responsibility of the Personnel Office to maintain a personnel file for each employee. This file is to include as a minimum the following information:

1. Offer of employment letter, if applicable.
2. A resume of employee history and a completed Center application form.
3. Reference material, recommendations, and appropriate publications.
4. Test scores, if any.
5. Record of salary changes, with reasons therefore, and other data relating to evaluations, supervisor reports, and recommendations.
6. Records of transfer, relocation, job status changes, position changes.
7. Benefits check list, salary determination and approval form.
8. Any other data having any bearing on the individual's relationship to the Center, including any special employment agreements or arrangements.

Public Broadcasting Environment Center
Personnel Policies and Procedures

TITLE: Ethical Conduct

Ethical conduct by organizations and individuals is normal and expected.

PBEC employees will be covered by the rules and guidelines published in the Corporation for Public Broadcasting Standards of Ethical Conduct, copies of which are distributed to appropriate officials and employees.

Public Broadcasting Environment Center
Personnel Policies and Procedures

TITLE: Equal Employment Opportunity

It is the policy of the Center to provide equal opportunity in employment for all qualified persons and to avoid discrimination in employment because of race, color, religion, sex, age or national origin.

The Center will advance the full realization of equal employment opportunity by affirmative action on the part of its officers, managers, and all employees.

The Center will operate under the guidelines stated in the CPB-EEO policy (see exhibits).

PART II

Compensation and Classification Program

Introduction

In preparation for the on-going phase of Center operation, preliminary work on a formal compensation, position description, and classification program has begun for both professional and support staff. Preliminary work includes:

1. A wage and salary survey among peer organizations.
2. Survey of compensation plans in use by above organizations.
3. Classification structures and description methods, including position control procedures being surveyed and outlined for Center application.

PART III

Accounting and Control Procedures

I. Introduction:

During the period of the original Planning grant, the Accounting System at PBEC has been supported by CPB where practicable in order to minimize PBEC expenditures in this area. When operating funds have been granted and when it is apparent that PBEC will operate under "going concern" concept, steps will be taken to implement a comprehensive system that will be capable of meeting internal and external accounting requirements and of adequately controlling the assets entrusted to PBEC.

Presented below is a description of the current accounting system, a plan for developing a permanent Accounting System once operating funds are obtained, and a description of the permanent system upon the execution of the plan.

Section A: Description of the Current Accounting System and System of Internal Control

1. General

Presently, the accounting system is divided between CPB-NY and PBEC-DC. The basis of the accounting system operated by PBEC is an imprest checking account. All expenses incurred by PBEC which do not exceed $5,000 are paid by PBEC. These expenses are subsequently reimbursed by CPB-NY on a regular basis. Expenses incurred by PBEC in excess of $5,000 are approved locally and then paid by CPB-NY. As a result of the above accounting support and the utilization of consulting assistance the positions of Director of Administration and Manager of Accounting have not been filled during the start-up phase.

2. Staffing and Related Responsibilities

a. Office Manager - Responsibilities

(1) Approves for payment all invoices less than $1,000.

(2) Maintains petty cash fund.

(3) Approves purchase orders amounting to less than $1,000.

b. Bookkeeper - Responsibilities

(1) Prepares all checks for signatures and subsequent payment.

(2) Prepares required accounting reports for submission to CPB-NY.

c. Business Manager - Corporation for Public Broadcasting

(1) Accountant for PBEC

(2) Pays all expenses incurred by PBEC in excess of $5,000 and all payroll items.

(3) Reconciles PBEC bank account.

d. Deputy Director - PBEC

(1) Oversees the PBEC accounting system

(2) Maintains overall control of PBEC's financial position.

3. Delegation of Authority

Position	Can Approve Up to $	Check Signer
Office Manager PBEC*	$1,000	Yes
Deputy Director PBEC*	$5,000	Yes
Executive Director or Deputy Director	all salaries to $20,000	
President, CPB	all salaries & contracts above $20,000	

* Key personnel with financial responsibilities will be bonded.

4. Purchase Order Procedures

PBEC utilizes a standard form, multi-part purchase order. Approval required for submission of the purchase order to a vendor is as shown in (3) above. Since PBEC is operating under a line item budget, all purchase order requests are compared to actual current expenditure in the appropriate line item category before the order is placed.

5. Accounting Methods

The PBEC imprest account is currently operating on a cash basis utilizing cash disbursements and account reconciliation accounting methods. All expenditures made by PBEC are reimbursed by CPB. Final Statement preparation incorporates limited accruals for items controlled by CPB-NY.

6. Expense Reporting

PBEC utilizes a standard form expense report, which is filed when expenses are incurred. Travel expenses are limited only to those allowable under the grant and applicable governmental regulations.

7. Time Records

PBEC uses a standard form time sheet which is filed semi-monthly. Any overtime must be approved by appropriate supervisory personnel. Any adjustments to an employee's semi-monthly pay are made in the subsequent payroll period.

8. Reporting

A statement of total monthly expenditures incurred by PBEC by line item expense classification is required of PBEC by CPB.

9. Payroll Control

Formal supervisory approval is required to effect changes in the semi-monthly payroll. These changes include, but are not limited to, appointments, terminations, change in position and salary rate.

10. Sub-Contract Accounting

A separate dossier is maintained for each sub-contract. Prior to the signing of the contract, PBEC conducts a review to insure compliance with Government regulations. After signing, periodic reviews are conducted to insure that compliance with existing regulations is being maintained.

11. Petty Cash Control

The petty cash fund is maintained by an employee who is divorced from the cash receipts or cash disbursements function. Petty cash expense vouchers are prepared in ink and signed by the recipient of the money and the custodian. Periodic counts of the fund are made by the custodian to insure total accountability.

12. Budgeting Control

The planning grant is allocated to budgeted line items of expense. Prior to the submission of a purchase order to a vendor, a budget check is made to determine present status with line item classification. System of formal approval is required for all purchases.

Sect..on B; Plan for Developing a Permanent Accounting System When Operating Funds are Obtained

1. Staffing

The Director of Administration and Accounting Manager will, with the assistance of professional firms, where required, establish a formal accounting system during the initial months of operation.

2. Tasks to be Performed in Developing the System

a. Development of a Procedures Manual.

b. Development of a Program Budgeting oriented Accounting System.

c. Development of a chart of accounts.

d. Analysis of reporting requirements.

e. Orientation courses for all employees.

f. Implementation of basic accounting recorder.

3. Review of Permanent System

PBEC's independent accounts will conduct a review of the Accounting System and the internal accounting control in conjunction with the initial annual audit.

Section C; Description of the Permanent Accounting System to be Developed

Changes to the existing system as described in Section B above will be effected as follows;

1. Full responsibility for accounting matters will be assumed by PBEC.

2. Staffing and Related Responsibilities

Full responsibility delegated to PBEC for all accounting matters, thereby eliminating CPB assistance.

3. Delegation of Authority

(See A above)

4. Purchasing

No change.

5. Accounting Methods

A formal accrual accounting system will be implemented. Transactions will be classified by source of funds, project, program, grant or contract as well as by line item of expense. At the end of each month, appropriate financial statements will be prepared to reflect the financial position of PBEC, as well as the status of programs, projects, grants and contracts.

6. Expense Reporting

An expense advance system will be designed and utilized. Expense reports will be submitted on a semi-monthly basis, to coincide with the submission of time and attendance reports.

7. Time Reports

(See A above)

8. Financial Reporting

Monthly reports will be prepared subsequent to the monthly financial closing. Reports will be prepared which compare actual budgeted expenditures by project, program, grant and contract, as well as by line items of expense. Quantitative measures of performance will be compared to related cost for each project and program. In addition, standard financial statments to include balance sheet, statement of income and fund balances will be prepared.

9. Payroll Control

PBEC will maintain its own payroll system. A full distribution by project, program, etc., will be made parallel to the payroll process.

10. Accounting Requirements for Federal Grants

The procedures manual, as mentioned in paragraph 2a, above, will include complete documentation of Governmental accounting requirements including allowable and non-allowable item, allocation of overhead, etc.

11. Contract Accounting

An accounting dossier for each contract or grant will be prepared as the contract or grant is arranged. This brief will normally include, but will not be limited to an enumeration of the terms of the contract or grant as they affect accounting control requirements so that compliance with these terms and appropriate Governmental regulations can be maintained.

12. Petty Cash

Prior to application of funds, the accounting system will provide for a review to determine the source of funds to be used (i.e. Federal vs non-Federal funds).

13. Budgeting

Program budgeting and control will be formally integrated with the accounting system to accurately disclose the actual and proposed financial position of PBEC.

NOTE: The system will be designed in such a manner so as to readily lend itself to Electronic Data Processing.

PART IV

Procurement and Contracting Guidelines

Introduction

Section A

This contains: (1) A procedure statement to cover the purchase of supplies, equipment, and materials; and (2) guidelines on processing of Quotations on materials and services in the normal course of office operations. Refinements to this general procedure will be implemented as needed.

Section B

This contains: (1) A statement of essentials to be considered in all PBEC contracts; and (2) Statement of Prohibition against discrimination under programs receiving financial assistance from CPB. (PBEC).

PART IV - SECTION A

Procurement and Contracting Guidelines

TITLE: Procedure for Purchase of Office Supplies, Equipment and Materials

1. For the purchase of regular supplies, equipment and materials, the following procedures will be used:

    a. Requests for purchases of all types should be submitted to the Business Office (Director of Administration).

    b. A purchase order will be typed and approval of the Deputy Director will be obtained.

    c. When the supplies or equipment arrive, it will be checked against the purchase order, approved, and the requestor will be notified. (Or the merchandise will be disapproved and returned to the vendor).

2. Special situations which arise requiring a departure from the above procedures will require approval of the Director of Administration.

TITLE: Quotations on "Office Materials and Services"

A. Any bids over $500 will have quotations from at least three sources unless sole source justification has been recommended and approved.

B. Sole source justifications will be approved by the Deputy Director. Project Directors will state why sole source applies and state objectively the reasons for a sole source procurement. The Deputy Director will approve or disapprove sole source justifications.

C. Competitive Bidding criteria are as follows:

1. Materials Procurements:

Selection of contractors will be made on the basis of:

a. Price

b. Timeliness of Delivery

c. Technical Quality of Item

2. Services Procurements:

Selection of contractors or organizations which provide services will be made on the basis of:

a. Firms or Organizations' qualifications and reputation to perform.

b. Price

c. Technical Content of Proposal

d. Schedule

e. Project Organization and Management capability

PART IV - SECTION B

PBEC CONTRACTS

1. Date of Agreement and date of completion.

2. Name of party.

3. Brief overview or abstract of work to be performed.

4. Specifications of work to be performed. If possible, identify points such as progress reports which can be used for establishing a payment schedule.

5. Name of individual (PBEC and other party) who will be directly responsible for supervision of the Sub-Contract.

6. Suggested payment schedule:

   Advance payments should be avoided.

   Payments should be tied to hard-copy milestones wherever possible (See #4 above).

   Final payment, preferably 15-25% of total, should be dependent upon receipt and approval of final written report or other documentation that work has been completed.

7. Budget. (If fixed priced includes only the total amount in contract, request "budget" breakdown from subcontractor and submit as a separate item.)

CONTRACTING AND PROCUREMENT POLICIES PROCEDURES

Title: Prohibition Against Discrimination Under Programs Receiving Financial Assistance from the Corporation for Public Broadcasting

Background:

Title VI of the Civil Rights Act of 1964 (Public Law 88-352] provides certain prohibitions against discrimination under programs receiving Federal financial assistance.

The Corporation for Public Broadcasting receives substantial amounts of Federal funds as well as private funds. Even though the Corporation's grants are financed by mingled Federal and private funds, the Corporation administers its programs in accordance with Title VI of the Civil Rights Act.

Policy

No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity administered by or receiving financial assistance from the Corporation for Public Broadcasting.

Specific Discriminatory Action Prohibited

A recipient under any program administered by or supported financially by the Corporation will not on grounds of race, color, or national origin: (1) deny any individual financial aid or other benefit provided under the program; (2) provide any service, financial aid, or other benefit to any individual which is different, or is provided in a different manner, from that provided to others under the program; (3) subject an individual to segregation or separate treatment in any matter related to his receipt of any service, financial aid, or other benefit under the program; (4) restrict an individual in any way in the enjoyment of any advantage or privilege enjoyed by others receiving any service, financial aid, or other benefit under the program.

Assurance Required

1. General. Every application for financial assistance from the Corporation shall, as a condition of its approval and the extension of financial assistance by the Corporation, contain or be accompanied by an assurance that the program will be conducted in compliance with the policy stated in the section on Policy and the requirements enumerated in the section on Specific Discriminatory Actions Prohibited above. See Exhibit 1.

2. Reference to compliance under Federal programs. Applicants to the Corporation who are also applicants for financial assistance under programs administered by Federal departments, agencies or commissions should make reference to their compliance with the requirements of these Federal organizations.

Such reference is for the purpose of simplifying administrative and other work by both the applicant and the Corporation.

Compliance Information

1. Reports. Each recipient of financial assistance from the Corporation will keep such records and submit to the President of the Corporation or his designee timely, complete, and accurate compliance reports as the President or his designee may deem necessary in order to determine whether the recipient has complied or is complying with the Corporation's requirements.

2. Information to beneficiaries and participants. Each recipient will make available to participants, beneficiaries, and other interested persons such information regarding the Corporation's requirements as the Corporation finds necessary in order to inform such persons of the protections against discrimination assured them by the Civil Rights Act.

Investigations and Complaints

1. Compliance reviews. The corporation maintains the right from time-to-time to review the practices of recipients to determine whether they are complying with the Corporation's requirements.

2. Complaints. Any person who believes he has been subjected to prohibited discrimination may file with the President of the Corporation a written complaint. Such complaint should be filed as soon as possible after the alleged act of discrimination.

3. Investigations. The Corporation, when it receives complaints, will make a prompt investigation. In the event the investigation reveals discrimination has been practiced, informal efforts will be made to eliminate the discrimination found.

4. Reprisal prohibited. Any person making a complaint charging prohibited discriminatory practice will not be subjected to intimidation, threats, coercion, or discrimination because of his complaint.

Procedure for Effecting Compliance

1. General. If there appears to be a failure or threatened failure to comply with these requirements, and if the situation cannot be corrected by informal means, the Corporation may:

   a. Suspend or terminate or refuse to grant or continue financial assistance; or

   b. Refer the matter to the Department of Justice for any proceedings that may be appropriate.

2. Termination of our refusal to grant or continue financial assistance. No order suspending, terminating, or refusing to grant or continue financial assistance shall become effective until:

   a. The Corporation has advised the applicant or recipient of his failure to comply with these requirements;

   b. There has been an express finding, after formal investigation, of a failure by the applicant or recipient to comply with these requirements.

EXHIBITS

A. Time Reporting Form

B. Employee Expense Account

C. Consultant Agreement

D. Consultant Expense Form

E. PBEC/CPB - Staff Policies & Benefits Booklet

F. PBEC/CPB - Ethical Conduct Statement

G. PBEC/CPB - Equal Employment Opportunity Statement

PUBLIC BROADCASTING ENVIRONMENT CENTER

Employee Time Report

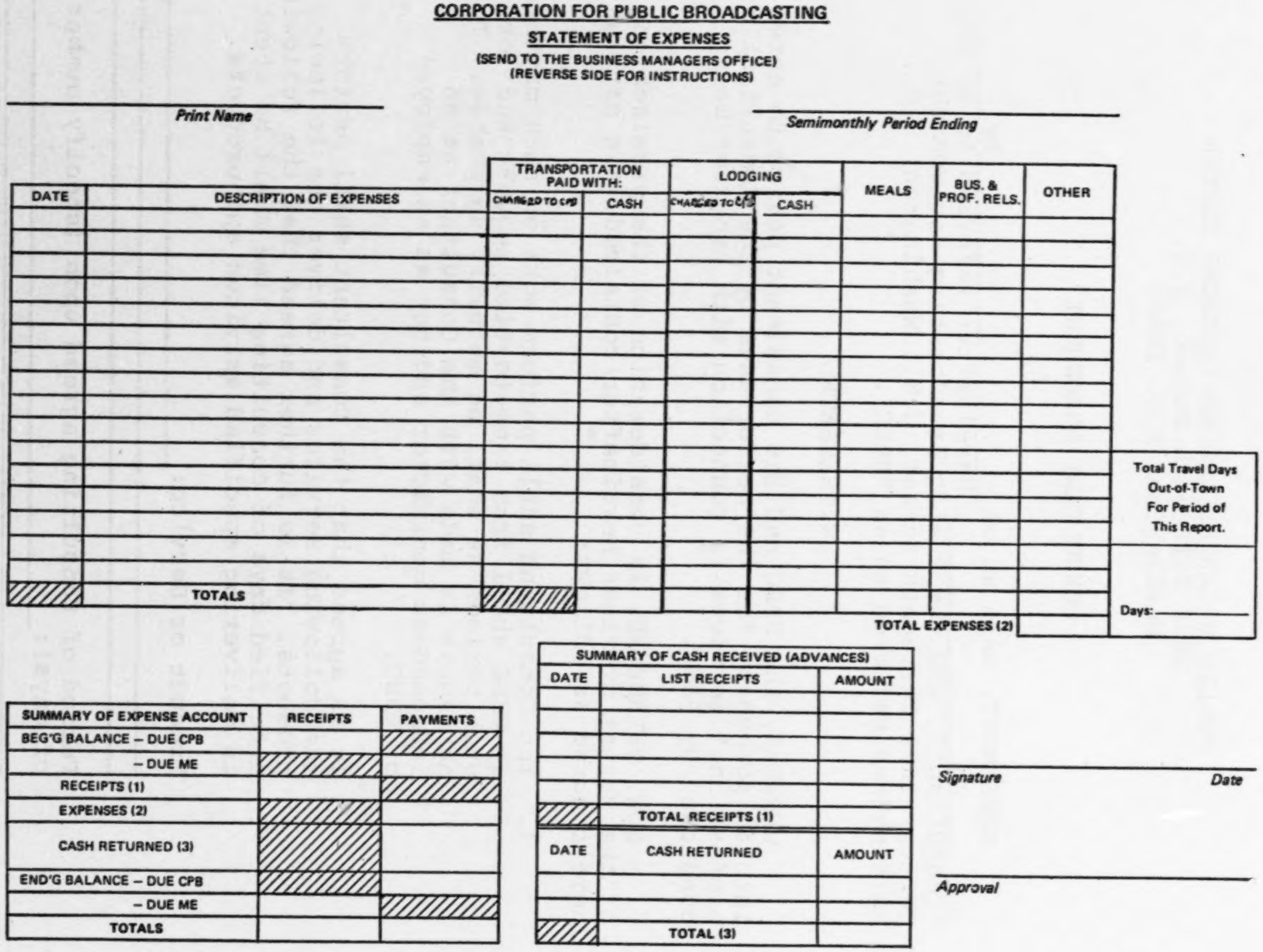
Code	Div. No.			NAME ______________________ (print)	Employee Number	Pay Period Ended Month Day Year	Page ____ of ____
	Dept. No.						

Comments	Project No.				1/16	2/17	3/18	4/19	5/20	6/21	7/22	8/23	9/24	10/25	11/26	12/27	13/28	14/29	15/30	16/31	Total Hours	Accounting Department Use
Admin. Clerical																						
Holiday																						
Annual Leave																						
Sick Leave																						
Total Regular Hrs.																						
Overtime																						
Total Overtime Hrs.																						
Total Hours Worked																						

______________________ Employee Signature

______________________ Approval Signature

Exhibit A
Time Reporting Form



CORPORATION FOR PUBLIC BROADCASTING

STATEMENT OF EXPENSES

(SEND TO THE BUSINESS MANAGERS OFFICE)
(REVERSE SIDE FOR INSTRUCTIONS)

Print Name ____________________

Semimonthly Period Ending ____________________

DATE	DESCRIPTION OF EXPENSES	TRANSPORTATION PAID WITH:		LODGING		MEALS	BUS. & PROF. RELS.	OTHER
		CHARGED TO CPB	CASH	CHARGED TO CPB	CASH			
▨	TOTALS	▨						
								TOTAL EXPENSES (2)

Total Travel Days Out-of-Town For Period of This Report.

Days: ________

SUMMARY OF EXPENSE ACCOUNT	RECEIPTS	PAYMENTS
BEG'G BALANCE – DUE CPB		▨
– DUE ME	▨	
RECEIPTS (1)		▨
EXPENSES (2)	▨	
CASH RETURNED (3)	▨	
END'G BALANCE – DUE CPB	▨	
– DUE ME		▨
TOTALS		

SUMMARY OF CASH RECEIVED (ADVANCES)

DATE	LIST RECEIPTS	AMOUNT
▨	TOTAL RECEIPTS (1)	
DATE	CASH RETURNED	AMOUNT
▨	TOTAL (3)	

____
Signature Date

____
Approval

Exhibit B
Employee Expense Account

Exhibit C

PUBLIC BROADCASTING ENVIRONMENT CENTER
1030 Fifteenth Street, N.W.
Washington, D.C. 20005

CONSULTANT AGREEMENT

AGREEMENT, made as of ____________________ by __________ ________________________, hereinafter referred to as the "Consultant", and the Public Broadcasting Environment Center, 1030 Fifteenth Street, N.W., Washington, D.C., hereinafter referred to as "PBEC".

WITNESSETH

WHEREAS, the PBEC and the Consultant desire to enter into an agreement for the performance by the Consultant of professional services in connection with programs being conducted by PBEC.

NOW, THEREFORE, in consideration of the premises and of the mutual promises hereinafter contained, the parties hereto agree as follows:

1. The Consultant shall perform work on such matters as PBEC shall from time-to-time request and for such periods as shall be mutually agreeable. This agreement is made with the Consultant as an independent contractor and not as an employee of PBEC.

   It is agreed that the Consultant shall perform the following services and deliver the following products. It is further agreed that the following specified days of consulting time shall be spent in delivering specified services and products.

   Product or Service: ______________________________
   ____
   ____

   Period of Consulting agreed upon (specify number of days): ______________________________
   ____
   ____

2. PBEC shall pay the Consultant at the rate of ______ ________________ for each eight (8) hour day spent on services rendered hereunder or spent in travel authorized in writing to and from the place where said service is rendered. Payment for fractional periods shall be at the rate of ________________, but no more than the stated daily amount shall be paid for any calendar day. In addition, PBEC agrees to reimburse the Consultant for all travel and other expenses incurred in connection with the services performed. Payment for reimbursement of expenses incurred will be paid upon the submission by the Consultant of invoices in three copies which itemize such expenses. Invoices must be substantiated by suitable receipts for transportation and lodging expenses. Total subsistence expenses shall not exceed________________per day. Approved use of personal automobile will be reimbursed at the rate of__________( ) per mile.

3. This agreement may be terminated at any time by either party by giving written notice to the other of three days.

4. The Consultant agrees that title to all rights or other legal interest in all data, analyses, graphs, reports, physical property, or other subject matter prepared, procurred, or produced in the rendition of the services shall vest in the Public Broadcasting Environment Center. The Consultant further agrees to execute an assignment in a form satisfactory to PBEC giving to it title to any such subject matter produced.

5. The Consultant agrees to promptly disclose to PBEC, its proper officers, attorneys, or patent solicitors, in forms satisfactory to it, any and all inventions and improvements, and to take all other lawful action which PBEC deems necessary in order to vest in it title to all inventions and discoveries first made or conceived by the Consultant during, as a result of, or as may be related to the services specified herein; and the Consultant further agrees to do or perform or cause to be done or performed all other reasonable acts deemed by PBEC to be necessary for the preparation and

prosecution of applications for, and the procurement, issuance, maintenance, and defense of patents, and/or copyrights, relating to such inventions, conveyed or expressed or agreed to be conveyed by the terms of this agreement, under the applicable laws of the United States, and under the respective applicable laws of foreign countries, all without further consideration than in this agreement provided for, but at the expense of PBEC.

6. The Consultant agrees not to disclose to any third party any information or other matter produced as a result of the services rendered herein except to the Government of the United States to the extent required by law and otherwise only as may be authorized by an authorized agent of PBEC. In performance of the work hereunder, the Consultant shall comply at all times with, and give all stipulations and representations required by, all application executive orders, Federal, State, Municipal, and local laws, and rules, orders, requirements and regulations thereunder.

7. Services performed under this agreement shall be performed at the following place or places: ____

8. Other conditions mutually agreed to by PBEC and the Consultant are specified below: ____

IN WITNESS HEREOF, the parties hereto have executed this agreement as of the day and year first above written.

PUBLIC BROADCASTING ENVIRONMENT CENTER

____

CONSULTANT

____

CORPORATION FOR PUBLIC BROADCASTING

STATEMENT OF EXPENSES FOR OTHER THAN CPB EMPLOYEES

(Forward To Business Manager's Office)

Send Check to:

NAME: ______________________
(Print or Type)

MEETING OR ACTIVITY: ______________________

____

____
ADDRESS

____
STATE ZIP CODE

DATES	Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	TOTALS ↓
COMPENSATION (Consultant's fee at per diem rates, including travel time)								
TRANSPORTATION Air, Rail (Attach invoice from carrier)								
Other (indicate taxi, limousine, etc.)								
LODGING (Hotels, etc. attach receipt)								
MEALS (indicate breakfast, lunch, dinner)								
OTHER (itemize type of expense)								
								TOTAL

____
SIGNATURE DATE

____
APPROVED FOR CPB PROJECT CODE NUMBER

CPB Form #10

Exhibit D
Consultant Expense Form

Exhibit F

CORPORATION FOR PUBLIC BROADCASTING

TITLE; Standards of Ethical Conduct

Background

Ethical conduct by organizations and individuals is normal and expected.

Special requirements for ethical conduct apply in the case of the Corporation for Public Broadcasting (including PBEC) and its personnel:

1. The Corporation, as a nonprofit organization enjoys special privileges extended to it by society.

2. It distributes or spends substantial amounts of public funds.

3. Its activity to a large extent requires it to select from among many who apply the few who receive these public funds.

4. This work, directly or indirectly, involves sensitive and sometimes controversial matters such as education and public affairs.

The Corporation, its officers, and its employees should, therefore, be particularly mindful of their conduct.

Unethical conduct often results from thoughtlessness rather than intent.

Avoidance of the appearance of unethical conduct is as important as avoidance of unethical conduct itself.

For these reasons the Corporation believes the clarification and guidance provided herein will assist personnel in conducting their own and the Corporation's activities.

Policy

The Corporation and its officers and employees (when acting for the Corporation) will govern their actions so as to serve only the public interest for which the Corporation was established. The Board of Directors, by its judgements in approving activities, determines how the public interest is to be served by the Corporation.

As stipulated by law (PL 90-129, Sec. 396 (e) (1)), "No officer of the Corporation, other than the Chairman and Vice Chairman, may receive any salary or other compensation from any source other than the Corporation during the period of his employment by the Corporation."

The responsibility each officer and employee has to the Corporation bars him from pursuing his own interests in ways injurious to the purposes of the Corporation.

This same responsibility requires that each officer and employee refrain from relationships or actions, ethical in the judgment of the officer or employee, that would have the appearance of affecting his pursuit of the Corporation's purposes.

Discussion

When an officer or employee is confronted with a potential conflict between his Corporation responsibilities and his personal interest, the problem is usually clear-cut and can be avoided. There are situations, however, where guidance is needed.

A number of examples of prohibited actions, relationships, or conditions is given below. When in doubt, consult your supervisor who will give guidance in specific cases.

1. While employed by the Corporation, accept no position in any other organization engaged in public broadcasting except as you may be authorized to do so by a Corporation officer.

2. Accept no payment or thing of value for any reason from any potential recipient of a grant from the Corporation or from any person or firm with whom you conduct Corporation business.

3. Accept no payment or honorarium (except possible reimbursement of reasonable directly related expenses) for speeches or writings when the subject matter has been provided as a result of employment by the Corporation.

4. Give no application or request preferential treatment for any reason other than the needs of the Corporation.

5. Fully disclose all plans or programs of the Corporation to all interested persons or organizations if they are disclosed to any. Do not provide amplification or further information to some but not all interested parties.

6. Do not impede or distort Corporation procedures for processing or evaluating requests from others.

7. Do not make decisions outside official channels.

8. Avoid establishing personal relationships with those who supply goods or services to the Corporation or with recipients of grants that would cause loss of complete independence or impartiality of judgment or would have the appearance of impairing such judgment.

9. When personal relationships already exist or do develop with those with whom the Corporation has dealings, reveal the fact so that others may either make necessary decisions or confirm your judgments.

10. Accept no outside employment, whether or not for pay, if the hours or conditions are such as to deprive the Corporation of services expected from you or which involve unauthorized use of Corporation time, personnel, or facilities.

These illustrative examples do not necessarily cover all problem areas. They do provide guidance for avoiding actions or relationships that would jeopardize or appear to jeopardize the independence or impartiality necessary for ethical conduct.

Action

All officers and employees of the Corporation, and others outside the Corporation as necessary or desirable, will be furnished copies of this statement of Ethical Conduct.

Annually, on or about January 1 or each year starting with 1970, all personnel will review this statement.

In the case of persons holding the positions or responsible for the functions listed below, each person will in writing each year inform the President (except as otherwise indicated) that he has reviewed this statement and that his actions are in compliance with it.

Chairman (Statement to Corporation Counsel)
Vice Chairman (Statement to Chairman)
President (Statement to Chairman)
Vice Presidents
Secretary
Business Manager
TV Program and Station Grants
Payments for Interconnection
Commissions, Acquisitions
Advertising Activities
Promotion Activities
Research Activities

EXHIBIT G

TITLE; Equal Employment Opportunity

It is the policy of the Corporation for Public Broadcasting (and PBEC) to provide equal opportunity in employment for all qualified persons and to avoid discrimination in employment because of race, color, religion, sex, age or national origin.

The Corporation will advance the full realization of equal employment opportunity by affirmative action on the part of its officers, manager, and all employees.

Employment Practices

The above-stated equal employment opportunity policy backed by affirmative action will apply to all employment practices:

1. Recruiting

a. When positions are to be filled, qualified candidates will be considered without regard to race, color, religion, sex, age or national origin.

b. Advertisements for candidates will be placed in media with substantial minority group circulation in the area of employment.

c. Employment agencies used to locate candidates will be advised of the Corporation's policy of nondiscrimination.

d. The Corporation's employment application form will carry the following statement; "Discrimination in employment because of race, color, religion, sex, age, or national origin is prohibited. If you believe you are discriminated against, you are asked to report the fact to the Equal Employment Opportunity Officer, Corporation for Public Broadcasting, 888 16th Street, NW, Washington, D.C. 20006."

2. Selection of New Employees

a. Individuals making hiring decisions will consider all minority applicants without discrimination.

b. Selection techniques will be designed and used to select fairly from among applicants. To the extent that tests are used in this process, they will be job related.

3. Placement and Promotion

a. Minority group members will be given equal opportunity for assignments and promotions.

b. Assignments and promotions will be made on the basis of individual ability, performance and the reasonable staffing needs of the Corporation at the time of assignment.

4. Equality of Work and Pay

The rates of pay and fringe benefits for employees performing equal work will not be different because of any difference in race, color, religion, sex, age, or national origin.

5. Other Considerations

Access to any Corporation programs (such as Training or recreational activities) or to any Corporation facilities will be provided without discrimination.

Designation of Equal Employment Officer

1. The President of the Corporation shall designate the Equal Employment Opportunity Officer.

2. Deputy Equal Employment Opportunity Officers are as follows:

a. New York - T. Holt
b. Washington - Matthew B. Coffey

Responsibilities

1. The Equal Employment Opportunity Officer will:

a. Formulate and revise as necessary a policy to provide equal employment opportunity in the Corporation.

b. Implement the policy by assuring affirmative action on the part of all employees to prevent discrimination in all the Corporation's employment practices.

c. Communicate the policy as necessary or useful to other organizations with which the Corporation has dealings.

d. Make final determination for the Corporation, when required, in case of complaints brought by employees charging discrimination in the Corporation's employment practices.

2. Deputy Equal Employment Opportunity Officers will:

a. Provide for the effective communication of Corporation policy by periodically (but not less frequently than every year) explaining the policy to all personnel in their respective offices.

b. By individual discussions with managers and others who may be involved, assure that actions involving recruiting, selecting, placing, compensating, and promoting personnel are non-discriminatory.

c. Serve as hearing officers in case of complaints brought by employees charging discrimination in the Corporation's employment practices.

Reports

1. Deputy Equal Employment Officers will make a narrative report to the Equal Employment Opportunity Officer periodically, but no less frequently than once every six months. The report will include, although it is not limited to the following:

a. Evaluation of Corporation policy and any recommended changes.

b. Comments on the practical operation of the policy.

c. Identification of actual or anticipated problems.

d. Specific cases that received attention during the period covered by the report.

e. Actions taken by the Deputy to counsel managers and to increase understanding of the policy by Corporation employees.

2. The Business Manager will provide a statistical report annually based on June 30 employment. The format of the report is shown in Exhibit 1.

a. Deputy EEO Officers will assist the Business Manager as may be necessary in identifying the minority group categories for individual employees.

b. The Business Manager may maintain employee records to show the minority group categories into which individuals fall. (Application forms for employment cannot request information about minority group status of applicants nor can the applicants be asked).

Complaint Procedure

1. Any individual who believes he has been discriminated against by the Corporation because of his race, color, religion, sex, age or national origin may make a complaint.

a. Who may complain? An individual or his authorized representative.

b. When? As soon as possible after the alleged act of discrimination.

c. How? In writing and signed by the complainant.

d. What should be included in a letter of complaint?

1) Name and address
2) Position in the Corporation
3) Specific action or situation that causes the complaint
4) Date of alleged act of discrimination
5) Identification of the person or persons responsible for the alleged act of discrimination
6) The type of discrimination alleged. (Specify if because of race, color, religion, sex, age, or national origin).

2. The Deputy Equal Employment Officer receiving a letter of complaint will within 10 days of its receipt hold a hearing, or if the complainant does not wish to have a hearing, make an investigation of the circumstances. Immediately after conclusion of the hearing or investigation, he will advise the complainant in writing of his determination of the case:

a. If he finds the complaint is justified, he will recommend necessary remedial action, which will be taken by appropriate authority.

b. If he finds the complaint is not justified, he will advise the complainant the decision by making application in writing within 10 days for a review of the case by the Equal Employment Opportunity Officer.

3. The Equal Employment Opportunity Officer receiving a letter requesting a review of a case will review the original letter of complaint and the Deputy EEO Officer's report of hearing or investigation. On the basis of that information, he will make his determination. The complainant will be advised of the decision within 10 days of receipt of the letter requesting a review.

4. There shall be posted in a conspicious place the EEO poster of the Commissioner's Council on Human Relations (Exhibit 2).

5. Any employee making a complaint of discrimination will not be penalized, disciplined, or the object of any reprisal because he made a complaint.

Appendix VII

PRODUCTION OF PROGRAMS:

"QUALITY OF LIFE"

Program Concept, Format and Production

Table of Contents

Production of Programs

- Introduction
- Conclusion

Quality of Life

- Concept
- Format
- The Arts
- Humor
- History
- Unity
- Individual and Community Participation
- Production
- Grants
- Schedule 419

VII. PRODUCTION OF PROGRAMS

Introduction.

The development of a weekly television series on the environment was one of PBEC's primary concerns throughout Phase I.[1] It was assumed from the beginning that such a series would be a principal contribution of the Center to environmental awareness, understanding and action.

In order for PBEC to know what it could and should do, it first had to know what already was being done. Much time and effort was spent acquiring this basic knowledge. Both commercial and public broadcasting were examined to determine the nature and dimensions of environmental programming.[2] Surveys were conducted to find out how many people had viewed past environmental broadcasts and who they were, the knowledge and dispositions of these viewers on environmental issues, how the broadcasts had affected their attitudes and actions and what further information they felt was needed or would be useful. Public broadcasting was investigated to determine the level and nature of its audience, how often its viewers are tuned in and when, what kinds of programs its viewers would most like to see developed and how they might respond to additional environmental programming.[3] Target audiences were characterized[4] and numerous models were developed to illustrate the role of local public stations in stimulating environmental action at the community level.[5]

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1. "Scope and Method of Approach" of Phase I proposal, Section IV, C (p. 10).

2. For the NAB survey of commercial broadcasting and the NAEB survey of public broadcasting, see Appendix I.

3. In addition to the NAEB survey, see the survey conducted by Louis Harris & Associates, Appendix IV.

4. This involved the Louis Harris survey, a survey of 45,000 "concerned citizens" conducted by Environmental Resources Inc., and an evaluation of the Puget Sound Coalition Environmental Action Program done by George Nelson Associates. See Appendix IV.

5. See Appendix XI.

Throughout this effort, the knowledge and skills of the PBEC staff were supplemented by outside specialists. Environmentalists, educators, curriculum developers, social psychologists, filmmakers, pollsters, commercial network executives, national and local public broadcasting personnel -- these and others were consulted frequently.[6]

Conclusions

On the basis of its initial work -- the extensive research, surveys and personal consultations -- PBEC reached a number of major conclusions. These were:

1) that in the past year concern over environmental problems has increased significantly;

2) that this increase in concern has been the result, in part, of the increased attention given to environmental problems in the commercial media, both print and broadcast;

3) that, despite their frequent good work, the commercial media have been inconsistent and superficial in their coverage, leaving sizable gaps in the public's basic awareness and understanding of environmental issues; and that currently there is no regular environmental programming on the three major commercial networks;[7]

4) that, in order to make rational decisions about environmental issues, the public should have, and in many cases is requesting, further information on environmental problems -- how and why they came to be, how they can best be resolved, what can be done at the local level both by individuals and by the community;

5) that public broadcasting is an ideal medium for imparting this information because of its extensive coverage through some 200 local television stations, its thoroughness of approach, its high level of credibility with the viewing public, its lack of commercial ties and restrictions and its basic commitment to serving the needs and interests of the public.

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6. Those who were consulted most frequently and their contributions are presented in the various Appendices.

7. Regular environmental programming was dropped after a short period earlier this year by both NBC and CBS; it never got out of the planning stage at ABC. See also Exhibit 2, NAB report to PBEC, Commercial Broadcasting and the Environment.

6) that a regular series of programs on the environment, broadcast nationally, would constitute a needed sustained focus in this area, provide an important stimulus and complement to the efforts of local stations and facilitate the promotion of environmental issues on a nationwide scale;

7) that PBEC can serve as a central force within public broadcasting on environmental issues, can serve a coordinating function in environmental programming, can complement and stimulate the efforts of local stations and that, therefore, it can and should produce this series of programs.

Having reached these conclusions, PBEC gave careful consideration to the nature and demands of such a series. Much time, thought and planning was devoted to the underlying concept, the proper format, production needs and sources and the requisite budget. The results of this work are contained in the following pages, which discuss the "Quality of Life" series as now proposed by PBEC.

It should be understood that a number of the ideas are tentative and subject to alteration, pending further consultations with appropriate specialists. Ultimate refinement of ideas and techniques, PBEC concluded, could only be undertaken during Phase II, when more would be known about the level of funding. The same applies to detailed script preparations. Also, "Quality of Life" is meant only to be suggestive and is used here simply as a working title.

Finally, it should be understood that "Quality of Life" will be an integral part of the PBEC System. It will be coordinated with the local station grants for community education, action and manpower training and will, when appropriate, incorporate materials resulting from these grants. It will be integrated with the PBEC Environmental Education Program. It will be backed up and promoted by the Communications Services Division. It will be closely tied to all PBEC facilities and will draw heavily upon the resources and work of these facilities.

"Quality of Life"

Concept

The "Quality of Life" series is one of the principal vehicles through which PBEC will realize its basic goals and objectives.[8] The series will be designed to stimulate environmental awareness, to provide environmental education and to generate much-needed environmental action.

The series will be substantive and informative, but at the same time entertaining. It will be creative. It will draw upon the knowledge and expertise of leading authorities in education and broadcasting, as well as environmental specialists. It will engage these authorities in actual program production and presentation. It will be coordinated closely with the work of local public television stations in an effort to develop strong community involvement. And it will stimulate local public stations by providing a national outlet for environmental programs produced at the local level.

Underlying "Quality of Life" will be basic ecological and environmental concepts. These concepts will be reflected not only in the content of the program but in its production and presentation as well. To realize its goals, the series will do more than teach about environmental concepts; it will embody them. Thus, rather than existing as an alien instructional force, "Quality of Life" will seek to become a part of each home and community into which it is broadcast. It will do this in a number of ways: by involving local public stations, by filming and discussing local problems, by utilizing audience feedback systems, by producing program segments aimed at minority audiences, by employing new techniques in the dissemination of important environmental information at local and regional levels, by producing relevant materials on the work of, and enlisting the talents of, significant writers, poets, painters, dramatists and musicians.

Each program will build on previous programs and will anticipate materials to be aired in succeeding weeks. The series as a whole will constitute a sustained attack on environmental problems rather than merely a collection of one-shot presentations. Also, it will present environmental issues in terms of manageable alternative solutions. The series will stress the immediacy of the problems at hand, but it will avoid the "doomsday syndrome" and point up constantly what can be done -- by individuals, by communities, by industry and by government.

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[8] See Volume One of this Final Report for PBEC Goals and Objectives.

"Quality of Life" will appeal to a variety of persons and groups. Much of its material will be designed for the general audience and much for special target audiences.[9] At least one segment each week will be designed specifically for children, teachers and parents and for the expected interactions between them. These segments will be supplemented by PBEC-produced discussion guides, books, games and other appropriate materials.

"Quality of Life" will deal with a broad range of subjects. It will concentrate on the core issues and not just the symptoms. It will point up the magnitudes of the various problems. It will, for example, deal with water and air pollution, recycling, pesticides, overpopulation, health, energy, technology, and land use.[10] It will deal not only with man's physical environment, but also with his cultural and societal environment. It will deal with value systems and life styles and human health in the broadest sense. The series will involve more than explaining what the problems are and will delve into how they came to be and how they might be resolved. It will indicate how alternative actions, or inaction, will produce different results. And it will pinpoint individual, industrial and institutional responsibilities in the achievement of certain goals.

Finally, the series will deal in basic concepts. It will be premised on the idea that we are, indeed, on a spaceship earth and that we -- plant, animal and human -- and all our resources sail together, that the survival of each is dependent on the other and that the web of life in which we find outselves should be tampered with only with the greatest of care, forethought and responsibility.

Format

"Quality of Life" will be one hour in length. It will be broadcast each week in prime time by the Public Broadcasting Service. It will run 52 weeks a year and will consist of 39 weeks of original programs and 13 weeks of reruns and reconstructed earlier programs. The series will be aimed at both general and selected audiences and will be presented primarily in a magazine format.

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[9] Target audiences will include such groups as housewives, businessmen, students, suburbanites, city dwellers and farmers, as well as blacks, Indians, Mexican-Americans, and Puerto Ricans.

[10] See Quality of Life Issues and Indicators, Appendix VI.

The magazine format has certain advantages which make it best suited for the "Quality of Life" series. Chief among these is its flexibility. Since the series will be dealing with a wide range of subject matter through numerous disciplines -- science, social science, the arts, the humanities -- it will need a great deal of format flexibility. This flexibility will be important not only in presenting the diverse problems but in demonstrating their interrelationships. The magazine format, in addition, will facilitate the use of program segments produced by local public stations, and "Quality of Life" will consist of many such segments.

The segments of the magazine will vary in length and subject matter. Certain segments will be presented every week, while others will not. Included in each program will be:

1) At least one segment designed to satisfy the needs of the PBEC Environmental Education Program for children, parents and teachers. This segment will be ecologically premised. Although it will center on a particular problem, concept or idea each week, it will be designed as an integrated school year curriculum. It will be supplemented by PBEC-produced discussion guides, books, teaching aids and other appropriate materials. The combination of the weekly broadcast segment with the supplementary materials will utilize and expand the "classroom without walls" concept, seeking to promote within and among the target audiences a continuing, constant discussion of the problems and ideas presented.

2) A news segment, which will present a thorough run-down of the major developments of the week relevant to environmental problems. This segment will relate current developments to in-depth discussions presented in other segments of "Quality of Life". It will keep track of developments relating to environmental issues dealt with in previous weeks of the series. This segment also will experiment with local and regional "alert" information, such as notifying specific communities and areas of important town meetings that will occur the following week, or of relevant studies that are underway, or of governmental action that is being considered. These segments might be spun off and used again during the week, nationally or locally, for educational purposes.

3) A major report, dealing in-depth with a particular environmental problem. This segment will vary in length from ten to thirty minutes. On a given week it may be devoted entirely to a given problem, or it may deal with two or more problems. The presentation techniques for this segment will vary widely. Traditional techniques, such as a filmed report of a problem, will be utilized. So will other techniques, such as: 1) presentation of a problem

through an actual or simulated trial; 2) debates; 3) panel discussions; 4) dramatic presentations; 5) "game" shows in which various individuals play against each other in an effort to resolve conflicting viewpoints on environmental issues; 6) model education projects. This segment will also incorporate interviews on environmental issues with important figures from industry, government, education, science, civic and other groups.

The aim of this segment is to impart to "Quality of Life" viewers a thorough awareness of the facts of a particular problem, how that problem came to exist, why it exists, how it might be solved and what it will take to effect alternative solutions. The subject matter covered will be wide-ranging. It will deal with transportation problems, with water and air pollution, with the disposal and recycling of solid wastes. It will deal with priorities and relationships, demonstrating how one governmental, community or individual action affects other aspects of the human condition. It will deal with consumer problems and with community action and organization. It will point up potential conflicts in emerging environmental values and past business and economic doctrines.[12]

"Quality of Life," for example, might on a given week do a major report on the world's developing energy crisis. Such a report would deal with the facts of the current crisis, and it would involve a wide range of individuals, civic groups and public and private organizations. The views, positions and actions of numerous groups would be presented, including the Federal Power Commission, the Atomic Energy Commission, the American Petroleum Institute, the National Coal Association, the Scientists Institute for Public Information, the Citizens for Clean Air, the Oak Ridge National Laboratory, and others. Economic considerations would be explored, as would legal, health, social and behavioral aspects of the problem. Leading authorities on the problem would discuss alternative solutions, and what it would take to effect them.

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[12] The harmful effects of past economic doctrines already is being recognized by some business leaders. William F. May, president of the American Can Co., has said that, "We have failed in the past, in carrying out our business, to consider society's environmental needs." Henry B. King, president of the United States Brewers Association, has stated that industry "recognizes the realities of life" and currently is motivated by a combination of "enlightened selfishness and a genuine concern for the environment." The Washington Post, November 19, 1970.

As another example, "Quality of Life" might do a film report on the students at Thomas School in Rowayton, Connecticut, who mounted an extensive and well organized letter-writing, speaking and petitioning campaign and were instrumental in bringing about the enactment of legislation to protect a section of marshland in their community from developers. The organization founded by these students is now being used to enhance community concern over pesticide use and overpopulation. A "Quality of Life" report on these activities would illustrate that environmental problems can be dealt with at the local level and would impart information on the techniques, organizations and activities needed in dealing with them.

Underlying production of the major reports, as well as all "Quality of Life" segments, will be the assumption that man's environment, and its problems, are both physical and cultural; that values, institutions and governmental action not only are related to the solution of environmental problems but are themselves an aspect of man's environment; that politics, economics, art, literature, the theatre, sport, all are integral components of our environment.

Problems dealt with in this segment will be referred to repeatedly in succeeding programs, both to update viewers on continuing developments and to demonstrate the relationship of certain problems with others that are discussed. There also will be cross-fertilization. Problems treated in this segment will appear in a different presentation in other segments of the program.

The Arts

In addition to the above standard weekly segments, "Quality of Life" will incorporate other techniques, devices and ideas. Among these will be use of the arts. The series will seek to point up the importance of art and the environment, art in the environment and art as the environment. It will deal with poetry and prose relevant to the environment and as the environment. Dance and drama will be llooked at and used. Music, which constitutes a dominant force in the environment of today's youth and black cultures, will play an especially important role.

The arts will be an integral part of "Quality of Life" because they are good tools of communication, because they can teach us about the environment and are an excellent means of teaching. Most importantly, however, they will be utilized because, like politics, economics and our physical surroundings, they too are our environment.[13]

Humor

"Quality of Life" also will incorporate humor. All segments of the program will employ it as an effective means of imparting serious information, but consideration also is being given to the development either of a weekly animated series or a series centered on a Chaplinesque, common-man-type family. Such a series would illustrate environmental issues through the the weekly antics of a humorous array of characters. The characters would be developed into popular trademarks for the series and would add diversity through light, lively entertainment while never leaving the subject matter of the series. Leading comedy writers and performers already have been consulted about this device and would be utilized in the development and production of any such material.

History

History, too, will be an important part of "Quality of Life." Materials will be produced where relevant to compare and contrast our current values and problems with those of the past, in hopes of supplying vital historical perspective to our current situation. An important function of the series will be to illustrate from the past, to point up where crises could have been avoided with adequate forethought and planning, to indicate the important success stories and the reasons and forces behind them.

"Quality of Life" also will present a brief "handy hint" segment, which will point out to the viewers simple solutions to minor, everyday problems. This could include such suggestions as how to get rid of rats without endangering other animal and human life, how adequately to dispose of garbage, how to add a touch of beauty to the home and community, how to protect against automobile and other mechanical breakdowns and injuries.

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[13] Buckminster Fuller has stated: "We have now so radically altered our environment that we must radically modify ourselves if we are going to continue to exist in this new open-ended environment. The new art facilitates this modification. It is a dynamic force which transforms life rather than transfixes it. The art of the future, like the most advanced art of the present, will be environment-oriented." Quoted in Air Art, Kineticism Press, 1968, from an article in the International Times, London, August 13 - September 13, 1967.

Unity

A magazine format with these diverse segments clearly poses a problem of maintaining unity. While suitable to "Quality of Life" because of its flexibility, this format must hold together the various segments, both within individual programs and throughout the series. There must be a consistency of style and tone and adequate pacing. PBEC is aware of this problem but is convinced that it can be resolved in a number of ways.

On the technical side, unity can be achieved and maintained partially through the host or hosts, who will appear each week and thereby become easily recognizable and identifiable personalities. The hosts also will tie the various segments together through narrative comments.[14] Unity also will be promoted through the regular appearance each week of certain segments of the program "Quality of Life" titles and introductory logos, and the control studios from which the programs will be coordinated.

The contents of the program will enhance unity, since no problem or issue will be treated in isolation. Particular issues will reappear frequently on various segments. References will be made to how the material handled in one segment relates to or affects that handled in another segment, either on the same program or on previous or succeeding programs. PBEC also may on occasion mold an entire one-hour program around one topic, with the education, humor, report, artistic and other segments dealing with the topic through their respective presentations.

Individual and Community Participation

Another aspect of the format that should be mentioned pertains to audience participation. It is not PBEC's idea that "Quality of Life" should be an elitist production, divorced entirely from the needs, desires and participation of its audience. PBEC will work from the assumption that public broadcasts, and particularly "Quality of Life," should be, not only for, but a product of, their viewers.

Participation will be achieved on the production side by involving environmental specialists and local individuals and communities in the planning and production of "Quality of Life"

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14. Broadcast consultants have indicated that this is the chief unifying element on the commercial network news magazines, "60 Minutes" and "First Tuesday," as well as "Laugh-In" and "The Today Show."

programs. Local stations will be encouraged to produce program segments and to supplement the series with broadcasts of their own. During Phase II, PBEC also will establish a system by which viewer recommendations for program materials can be solicited, received, considered and acted upon. Particular "Quality of Life" program segments also will be available for reuse by local stations, schools and communities.

PBEC in addition is planning the incorporation of a dynamic audience feedback system into the program.[15] This could involve feedback both during and after a week's program, to either the local station or the national studio. Further investigations will be undertaken and a decision on whether and how to employ such a system will be made during Phase II.

Production

Staff The overall production of the "Quality of Life" series will be controlled by a special PBEC staff. This will enable PBEC to maintain the necessary controls over program content and quality. To contract for the overall production with an outside agency would leave PBEC with little more than an approve-or-disapprove decision over the product, which would be highly undesirable.

Furthermore, the grant-making aspects of the series cannot be isolated from those who are responsible for the overall production. If PBEC contracted the production of the series to an outside agency, it would have to give grant-making authority to that agency and would thus lose control over a key mechanism for promoting local public station involvement.

Without an in-house production staff, there would be no way to develop the necessary style and "look" to the series. Rotating overall production among several agencies simply would not produce the required consistency of style and tone.

Finally, an in-house production staff will enable PBEC to coordinate the "Quality of Life" series with the grants to local stations for community action and education and with all other aspects of the PBEC System.

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[15] Dr. George Bair, Director of Educational Television at the University of North Carolina, envisions public broadcasting as "a new house" where "all people are unvited in, not shouted at as they stand outside the closed windows... there will be real confusion as to who is host, the broadcaster or the viewers." From "The Haunted House of Public Television: Reconceptualizing ETV's Self Image," Educational Broadcasting Review, October 1970, pp. 3-7.

Composed of highly qualified professionals, the PBEC production staff will include:

1) An executive producer
2) A grant co-ordinator
3) Two senior day-of-air producers
4) Two producers
5) Three associate producers
6) Two production managers
7) An art director
8) A staff writer
9) A staff director
10) An engineering supervisor

Ultimate responsiblity for production of the series will rest with the executive producer. He will work with the director of the Television Division of PBEC in developing program format and style, supervise the awarding of grants and work with the day-of-air producers on individual programs. The executive producer will report directly to the director of the PBEC Television Division.

The grant co-ordinator will be charged with approving initial Research and Planning Grants and later Production Grants and insuring that both are executed properly. He will report directly to the executive producer.

The two day-of-air producers each will be responsible for a program on alternate weeks. They will screen all outside packages, assemble then into the specified program format, produce needed transitional material and supervise the editorial tone of each broadcast.

Each day-of-air producer will be assigned a producer, an associate producer and a production manager. The third associate producer will be used as a fill-in where necessary.

The art director will help to formulate the overall "look" of individual programs and the series as a whole. This will be an important function, as "Quality of Life" must be distinctive, consistent and of the highest quality.

The staff writer, the staff director and the engineering supervisor will perform their respective functions as in any standard production unit.

Grants

While the PBEC staff will maintain ultimate control over the "Quality of Life" series, the actual production of most individual segments will be done by independent production agencies.[16] Public broadcasting personnel and facilities will be used to the maximum extent possible, consistent with PBEC's quality requirements. Grants may be awarded to independent agencies both for research and planning and for production.

Research and Planning Grants will be awarded on the basis of initial program segment proposals emanating either from an outside source or from the PBEC staff. These grants will enable qualified agencies to conduct extensive research, to undertake surveys when necessary and to determine whether a particular program proposal can and should be produced. Upon completion of its research, the agency will submit to PBEC a final report. This report will contain a detailed and thorough description of the proposed program segment, a complete production schedule, an explanation of the production techniques to be used, a list of uncontrollable variables that must be taken into consideration and a detailed production budget. It is on the basis of this report that PBEC will decide whether to award a Production Grant.

By separating research and planning from production, PBEC hopes to save money and at the same time to maximize program quality. If at the conclusion of any Research and Planning Grant PBEC concludes that the initial program proposal is not feasible or worthwhile, it can terminate the proposal without having committed itself to an expensive production process. Also, the separation of research and planning from actual production will enable much valuable research to be done on environmental problems even though the final report does not justify production of a program segment.

Once PBEC has evaluated a final report and decided to proceed with production, it will award a Production Grant to a qualified agency. This grant will cover production costs from start to finish. Each project will have a different scope, approach and production time, but the PBEC staff will maintain close supervision of each project to insure that content and quality are maintained as specified in the grant. PBEC also will insure that relevant specialists participate in the production phase as their knowledge and skills are required. These specialists will include scientists, writers, community activists and others.

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[16] See Exhibit 38 (attached).

Strict controls will be exercised throughout the design and production of all materials to insure that the specified objectives are being met. This will apply to all time, quality and content requirements. The final task of assembling individual segments into the weekly program, as already indicated, will be the responsibility of the PBEC production staff.

It should be understood that the Research and Planning Grants and the Production Grants are not the same as the community action grants awarded to local public stations through the PBEC System.[17] The director of the Television Division and the PBEC executive producer, however, will maintain close liaison with those administering the community action grants so that materials resulting from them may, when desirable, be incorporated into the "Quality of Life" series.

Both Research and Planning Grants and Production Grants will be awarded on a continuing basis so that new material will be coming in at all times. A sufficient number of Production Grants also will be awarded well in advance of the first "Quality of Life" broadcast to insure that an adequate stock of program segments is available. Many segments, particularly those dealing with breaking events, nonetheless will be in production right up to air time.

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17. Local station grants are described on p. 8 of this Final Report.

SCHEDULE: PBEC's goal is to premiere the "Quality of Life" series the week of November 1, 1971. Assuming the availability of funds, the following production schedule will be adhered to:

January-February:	The PBEC production staff is assembled and the program format is designed in detail.
March:	Research and planning proposals are solicited and reviewed and initial grants are awarded. This process will begin in February.
April:	Final reports from the initial Research and Planning Grants are returned and decisions are made on which segments to produce and which production agencies to use.
May 1-July 15:	Production Grants are awarded and the individual segments are produced.
July 15-August 15:	The individual segments are submitted to PBEC and the PBEC production staff begins reviewing them and putting the initial programs together.
April 15-November 1:	The PBEC production staff assembles the initial programs, including a first dry run on September 1, a second dry run on October 1 and the premiere broadcast of "Quality of Life" the week of November 1, 1971.

PRODUCTION SOURCES Exhibit 38

A. This special report on television production sources within the public and commercial television industries and among outside production agencies was submitted by a recognized expert in this field. His criteria demanded:

1. Experience in television production and past performance.
2. Availability of facilities within public television or elsewhere.
3. Distinction between (a) technical facilities only and (b) producing talent and editorial talent to accompany such facilities.
4. Technical facilities available to independent producers and writers, particularly freelance.

B. Two distinctions should be made in compiling a list of production sources upon which PBEC may call:

1. The distinction between Public Television production sources and all others.
2. The distinction between those agencies with complete production capabilities, including producers and competent editorial supervisors, and those agencies that are equipped to offer only technical facilities.

C. In regard to Public Television sources versus outside agencies, one should take into consideration the fact that it is always desirous to put program dollars back into Public Television. At the same time, however, it is absolutely necessary for PBEC to look for and demand the highest quality performance possible whether it be within Public Television or outside.

D. In regard to those production sources, both public and private, which are identified as principally technical centers, PBEC will have to exercise care in making grants to such agencies. Too often an organization will claim it is completely capable of assuming editorial and creative responsibility for a production only to go outside that organization and hire unknown freelance writers and producers who may, or may not, be qualified to meet PBEC standards. It will have to be PBEC's responsibility to determine the complete scope of any one organization's capabilities.

Following is a partial list of the wide variety of production sources upon which PBEC may be able to call:

1. PUBLIC TELEVISION ORGANIZATIONS WITH COMPLETE PRODUCTION CAPABILITIES:

Agency	Comment
NET, A Division of the Educational Broadcasting Corporation (formerly National Educational Television) 10 Columbus Circle, NYC (10019) (212-262-4200) James Day, President William Kobin, Vice President for Programming	The major national program producer for Public Television. Producer of "Our Vanishing Wilderness" and "The World We Live In" series. With NET's merger with WNDT, New York, it has its own studios, video tape, and film facilities. Also, it has the largest staff of producers, writers, and production personnel within Public Television.
KQED-TV, San Francisco 525 Fourth Street, San Francisco, California, 94107 (415-391-1000) Richard Moore, President and General Manager Jonathan Rice, Director of Programming	KQED has been involved in more environment-oriented programming than any other Public Television station. It has excellent film crews, and complete studio and video tape facilities. Moore and Rice are both former producers and have surrounded themselves with qualified people.

WGBH-TV, Boston
125 Western Avenue, Boston,
Massachusetts, 02134
(617-868-3800)
Stanford Calderwood, General Manager
Michael Rice, Director of Programming

WGBH has been most active in the ecology field. The station is deeply involved in Harvard's ecology movement and has produced numerous programs on the subject. The station has fine studios, excellent film crews, and several versatile producers.

WQED, Pittsburgh
4802 Fifth Avenue, Pittsburgh,
Pennsylvania, 15213
(412-683-1300)
Lloyd Kaiser, President
Dr. Thomas Skinner, Vice President

The station has a brand new building with excellent studio and video tape facilities. It has several qualified producers and editorial supervisors.

KCET-TV, Los Angeles
1313 North Vine Street,
Hollywood, California, 90028
(213-466-4212)
Dr. James L. Loper, General Manager
Charles Allen, Vice President, Programming

The station has very good studio and video tape facilities. It also has on staff several good producers including Robert Foshko. It also has access to a number of excellent freelance producers in the Los Angeles area.

WHA-TV, Madison
3313 University Avenue,
Madison, Wisconsin, 53705
(608-262-9921)
Richard Lutz, General Manager

Madison is establishing a complete film unit headed by Boris Frank. It has limited studio and video tape capabilities.

KEBS-TV, San Diego
San Diego State College
San Diego, California, 92115
(714-885-0234)

San Diego has an excellent film unit supervised by the station's news director Peter Kaye.

KUHT, Houston
4513 Cullen Blvd., Houston,
Texas, 77004
(713-748-6814)
Dr. Patrick Nicholson, Dir.
James L. Bauer, Manager

Houston has an extremely good film unit with production capabilities. It is headed by Jim Bauer.

WJCT, Jacksonville, Fla. 2037 Main Street, Jacksonville Florida, 32206 (904-354-2806) Fred Rebman, General Manager	This station has done most interesting projects both in film and video tape on a small, low budget, basis.
WMVS, Milwaukee 1015 North Sixth Street, Milwaukee, Wisconsin, 53203 (414-271-4341) Dr. Otto Schlaak, Station Mgr. Rod Thole, Program Manager	A most progressive university station with good studio facilities.

II. COMPLETE PRODUCTION AGENCIES OUTSIDE OF PUBLIC TELEVISION:

Agency	Comment
NEW YORK CITY	
Louis de Rochemont 225 E. 46th Street, 10017 (212-245-5302)	The firm does very high quality, but traditional, industrials. Famed as the producer of "March of Time."
Byro Productions Eric Albertson, Hugh Robertson, Eddy Beyer 1619 Broadway, 10019 (212-765-2840)	Both an editing and production company. Its editing credits include "Midnight Cowboy" and "New Leaf." Its production credits include "Dream on Monkey Mountain."
Drew Associates Robert Drew, President 712 Fifth Avenue, 10019 (212-265-4840)	Mr. Drew and his staff have had a wide range of assignments from documentaries for Time-Life and ABC Television to the political campaign of Nelson Rockefeller. They are specialists in the handheld technique.
Henry Strauss Productions, Inc. 31 West 53rd Street, 10019 (212-757-0651)	A top quality industrial documentary and film house. Many imaginative films for clients such as IBM and Pan American. A most diversified organization.

LOS ANGELES AREA

Charles Eames 901 Washington Blvd., Venice 90291 (213-396-5991)	The designer-artist-author also has a small film production unit that deals mainly in abstract, and often times imaginative, films.
Metro-Goldwyn-Mayer Television Productions (Documentary Department). Irwin Rosten, Executive Producer 10202 West Washington Blvd, Culver City, 90230 (213-836-3000)	Well qualified production unit specializing in cultural adventure documentaries. Presently producing for General Electric the NBC adventure series which has included "The Manhunters" and "The Wolf." Mr. Rosten was formerly producer for the National Geographic Series for the Wolpher organization.
U.P.A. Pics, Inc. 4440 Lakeside Drive, Burbank 91505 (213-849-3221)	Besides features, this organization has produced several environment shorts of high quality.

SAN FRANCISCO

Lee Mendelson Film Productions 1408 Chapin Ave., Burlingame 94010 (415-343-5337)	This organization has produced a wide variety of network specials from the "Peanuts" series to the documentary, "They Said It Never Could Be Done."

SEATTLE AREA

King Screen Productions 320 Aurora Ave., North Seattle, 98109 (206-682-3555)	This group, which is a division of King Broadcasting, has produced a number of environment-oriented films including "Garbage," "Tree House," and "Men at Bay."

WASHINGTON, D.C.

Eli Productions 1516 P Street, N.W.,20005 (202-332-1100) Jim Helliwell, John O'Toole	This organization has complete film production facilities and a staff of quality writers and producers, especially Mr. O'Toole, who formerly worked for NET and PBL. The company has done films for VISTA, HEW, The Library Institute, and the FAA.
Charles Guggenheim & Associates 815 17th Street, N.W. 20006 (202-363-7396) Charles Guggenheim, President	Principally known for the production of brilliant political campaign films, but also has done imaginative documentary work for industrial clients, the USIA, and the city of St. Louis.
Stuart Finley, Inc. 3248 Mansfield Road, Falls Church, Virginia,22041 (202-481-7700)	Producer of many films on the environment including "Mud" and films for government agencies. Tends to be very traditional in his approach to film making.

ANIMATION

In the field of animation, there are several outstanding specialists who should be listed. They include:

John & Faith Hubley 165 East 72nd Street New York, N.Y. (212-744-8050)	No doubt two of the most outstanding animators in the country. Many public series spots.
Hanna-Barbara 3400 W. Cahuenga Blvd. Hollywood, California,90028 (213-466-1371)	A pioneer in the production of animated series for television including "The Flintstones."
Videart, Inc. 62 West 45th Street New York, N.Y. 10026 (212-682-2363)	This organization does not have a producing staff in the editorial sense, but it does superb work with animating stills.

Aram Nowak Associates 254 West 54rh Street New York, N.Y., 10019 (212-581-3140)	Top quality feature producer. Also has done brilliant animation including "Runaround" for the American TB Association.

III. INDIVIDUAL FREELANCE PRODUCERS:

There are many outstanding producers, with or without their own production companies, who could be considered for specific assignments by PBEC. Many have already worked in the field of Public Television, especially for NET.

Arthur Barron 845 West End Avenue, N.Y. (212-222-2043)	For PBL produced "Life and Death." For NET several productions including "Blue Collar Worker."
Shelly Grossman Shoshone Productions 465 West End Avenue New York, N.Y. 10024 (212-724-3346)	Producer for the NET/Time-Life series "Our Vanishing Wilderness." A longtime distinguished conservationist.
William Jersey Quest Productions 630 Ninth Avenue New York, N.Y. (212-247-0398)	Producer for NBC News, USIA, and many other agencies. Produced the highly acclaimed "A Time for Burning." For NET, Mr. Jersey has done "My Name Is Children."
Douglas Leiterman Document Associates, Inc. 630 Ninth Ave., N.Y. (212-765-3795)	Producer of many films and documentaries. For NET, Mr. Leiterman produced the film on air safety "Fasten Your Seat Belts."
Al Wasserman Albert Wasserman Productions, Inc. 300 West 55th Street, N.Y. (212-757-4875)	Exceptional producer who for five years was chief creative talent for "The NBC White Paper" series.

Frederick Wiseman Osti Corporation 264 Third Street, Cambridge Massachusetts (02142)	Producer of many features and television specials including "Law and Order," "Titicutt Follies," and "Hospital."

IV. OUTSIDE ORGANIZATIONS WITH WHICH PBEC MIGHT DO CO-PRODUCTIONS:

There are many agencies, both within and outside government, that are producing or commissioning major film projects on the subject of environment. There is a possibility that the Center could negotiate co-productions with some of these organizations.

WITHIN GOVERNMENT:

HEW's Environmental Control Administration	This agency has produced several excellent films including "Pandora's Easy Open Pop Top Box," "Sources of Air Pollution," and "The Third Pollutor (Solid Waste)."

U.S. Department of Agriculture

The National Parks Service

The U.S. Public Health Service

CONSERVATION GROUPS THAT HAVE PRODUCED OR COMMISSIONED FILMS:

The Sierra Club in conjunction with:
Association Films, Inc.
25358 Cypress Avenue
Hayward, California 94544

National Wildlife Federation
1412 16th Street N.W.
Washington, D.C. 20036
(202-AD 2-8004)

The Conservation Foundation
1250 Connecticut Avenue, N.W.
Washington, D.C.
(202-659-2180)

National Audobon Society
1130 Fifth Avenue
New York, N.Y. 10028
(212-EN 9-2100)

PRIVATE COMPANIES THAT HAVE PRODUCED ENVIRONMENTAL FILMS:

Time-Life Broadcasting & Time-Life Films Time-Life Building Rockefeller Center, N.Y., 10020 (212-556-1212) Jack Beck, Executive Producer	For two seasons have produced with NET a series of conservation films entitled "The World We Live In." The producer is Lothar Wolff. Also with NET, the film "Water-Old Problems, New Approaches."
Encyclopedia Britannica Educational Corporation 425 N. Michigan Avenue Chicago, Illinois 60611 (312-321-6800)	This organization has already produced under the series title "The Problems of Conservation" a dozen or more films on the environment. They are done in a most traditional documentary manner, but a very thorough one.
McGraw Hill Contemporary Films 330 West 42nd Street New York, N.Y. 10036 (212-971-3333)	Producer of many environment films including "The Great Swamp," "Population Explosion," "Problem of Water Is People," and "Standing Room Only."
The B.B.C. Aubrey Singer, Head of Features Group, Television	
The C.B.C.	
Canadian Film Board	

V. PRODUCTION FACILITIES (TECHNICAL) WITHIN PUBLIC TELEVISION:

Besides those Public Television agencies with complete production potential, there are a number of stations that have good film and/or video tape facilities.

WETA-TV, Washington, D.C. 2600 Fourth Street, N.W. Washington, D.C. 20001 (202-384-1300)	Good quality studio and video tape capabilities. The station also has a color remote unit.
WMPB, Baltimore, Maryland Maryland Center for Public Broadcasting Owings Mills, Maryland, 21117 (301-356-5600) Warren Park, Director of Programming & Operations	A brand new first rate facility with studio, video tape, and film facilities. At present, it does not have a remote unit.
South Carolina Educational Television Network 2712 Millwood Avenue Columbia, S.C. 29205 Gene Upright, Assistant Director of Education	A good quality video tape and film facility.
WHYY, Philadelphia 4548 Market Street, Philadelphia, Pa. 19139 Warren Kraetzer, Executive Vice President & General Mgr. Bruce Beale, Director of Programming.	Good studio and video tape facilities.
WTTW, Chicago 5400 North Street Louis Ave. Chicago, Illinois, 60625 (312-583-5000) Dr. John W. Taylor, Executive Director	Good studio and video tape facilities. The station has no remote unit.

VI. PRODUCTION FACILITIES (TECHNICAL) OUTSIDE PUBLIC TELEVISION:

The following should be considered as strictly production facilities and not producing agencies:

Reeves Video, New York City 304 East 44th Street New York, N.Y., 10017 (212-OR 9-3550)	Top quality video tape facilities, but no studios. Excellent remote units.
Logos Teleproduction Center, Washington, D.C. 3620 S. 27th Street Arlington, Virginia, 22206 (703-671-1300)	Good video tape facilities with one large studio. A good color remote unitl
WFLD, Chicago The Marshall Field Station Chicago, Illinois	Excellent video tape and remote facilities.
WFAA, Dallas, Texas	No doubt the best video tape remote facilities in the Southwest.
Lewron Television, Inc. New York City. 625 West 42nd Street New York, N.Y. 10036 212-524-4225	An excellent facility with remote capabilities.

In summation, it should be restated that this obviously constitutes only a small portion of the production sources available to PBEC. Those listed, though, do represent a wide range of experiences and talents.

It should also be pointed out that production sources in the film and television are constantly changing. This is especially true in Public Television where stations are constantly improving their technical facilities and adding more professionals to their staffs. A grant, for instance, from PBEC might allow a particular station to hire someone who has been freelancing in the past.

Appendix VIII

COMMUNICATIONS SERVICES

Table of Contents

A. PBEC Communications Services

- Introduction
- Background
  - Research Support
  - Communications within Public Broadcasting Industry
  - News Service
- Conclusions and Recommendations
  - Staffing
  - Objectives
  - Research Support
  - Communication within the Industry
  - News Service

B. Public Affairs

- Government Relations
- Public Relations
- Promotion

APPENDIX VIII

COMMUNICATIONS

A. PBEC Communications Services

This report outlines the needs within the public broadcasting community and elsewhere for substantive research support on environmental programming and for information interaction among public broadcasting stations and their communities and between the stations and national public broadcasting organizations. It proposes methods of meeting these needs. It also proposes to provide material for a daily radio news program on environmental matters and a weekly television news segment of those matters. It outlines a public affairs operation to promote PBEC activities.

Introduction

In attempting to create a greater awareness of man's environment, hard data on events, findings, developments, concepts and controversies in the ecological and environmental world must be delivered to or made available to those who need it. PBEC will have access to its own and other's rich resources in environment matters. Ways must be devised to get that information to those who will use it: those writing and producing PBEC-sponsored television and radio shows, community projects and educational materials; the 198 public television and 96 CPB-qualified public radio stations; Educational Broadcasting Corporation (formerly NET); Public Broadcasting Service; National Public Radio; commercial networks and stations cable television--to name a few.

Public broadcasting's national organizations and local stations have meager facilities, if any, for substantive research. If they are to be informed about environment matters on a regular and reliable basis, PBEC clearly has a mission to supply this support.

Furthermore, it is important to establish an interaction of communication within the public broadcasting industry, particularly among the local public broadcasting stations, which are important components of their own communities. Sharing of individual local experiences, successes and failures will enrich the knowledge and activities of all the stations. It also is important, not only for the stations to know what is available to them from PBEC, but for PBEC to get reactions from the stations, a continuous feedback operation. PBEC also should keep other national groups in public broadcasting well informed to encourage them to cooperate in the support and distribution of PBEC material.

Generating and reporting regularly news in the environment field is an important method of increasing public awareness. There are many daily developments in this area, most of which are overlooked by the media in the competition with other news. But it is an accepted generalization that an informed public is an enlightened public; an enlightened public on environmental matters must receive regular and substantive news on the subject. Environmental awareness must become a part of our daily lives.

Promotion of PBEC's activities and productions is crucial in order to get the widest and most consistent acceptance among the various target audiences. Therefore an aggressive promotion program, using accepted and new techniques, must be launched at the very start of operations.

Background

Research Support:

A review of public broadcasting sources reveals that practically no libraries, data centers or other research service exist either on a national or a local basis to support program content planning. Research for major programs is generally achieved program-by-program by the producers or contracted out to commercial researchers.

No central library or research/reference bureau on environmental concerns exists, although some non-broadcasting groups have their own specialized capabilities, such as the Conservation Foundation.

There are many weekly, bi-weekly and monthly publications on environment, air and water pollution and related matters. In general these publications are inappropriate for use by potential users of PBEC services, because of lack of relevance to their primary interests, and lack of time and reference facilities.

The Bureau of National Affairs (BNA) has an integrated, expensive weekly service called BNA's Environment Reporter, an excellent source to which PBEC subscribes. One part of the service is a weekly element called "Current Developments." It is possible that it would make an excellent basic updating service on environment matters for reference in each PB station or other offices, despite the shortcomings noted in the preceding paragraph.

Communications within Public Broadcasting Industry:

Station managers, program directors, promotion and community service directors all receive several forms of written communication from national sources. The Corporation for Public Broadcasting's (CPB's) Public Affairs Director, William Duke, circulates a monthly Newsletter and bi-weekly Memo, in addition to occasional Newsletter supplements with special announcements. CPB Station Development Support Director, Roland Fenz, sends a periodic "communique" to the stations, filled with information on local activity. National Public Radio President, Don Quayle, plans his own regular communication in print with public broadcasting radio stations. Public Broadcasting Service plans a newsletter. The National Association of Educational Broadcasters has a regular newsletter and a memo. Educational Broadcasting Corporation (NET) has a newsletter called OFF CAMERA.

All of these publications keep station personnel quite informed of developments among themselves and within the industry generally. Most of the letters and memos are directed toward specific problems and events, such as fund-raising, station development, personnel changes, etc. None is primarily concerned with environmental content or programming.

Most sources within the industry say that the best form of effective communication on an urgent and effective basis is the telephone, TWX or the TV interconnection operated by PBS and personal visits between national representatives and station personnel. NPR will soon have its interconnection for radio stations.

In addition to industry communications among the stations and within the national organizations in public television and radio, there is an extensive amount of interstation letter-writing and exchange of information informally. There are also minor publications, such as "Educational Television," a commercial monthly magazine printed in Connecticut, which has only passing acceptance. Frequent regional and national meetings of program directors and station managers, highlighted by the annual NAEB meeting, provide elaborate in-person opportunities for information exchange, which apparently is much prized by the personnel involved. There is also considerable exchange of television program guides, which are said to stimulate some program development on the local level.

News Service:

Routine news about environmental matters (but not human environmental perceptions or attitudes appear regularly in the popular media; e.g., oil spills, air-pollution index scares, future of internal combustion engine, rationale of SST. More and more of these stories are related to long-term environmental considerations. A greater environmental awareness, stimulated in large part by these news stories, has occurred.

Nevertheless, there is no regular, daily reportage on this subject so urgent to future existence--as there is on sports, the stock market, horoscopes, obituaries, radio-TV schedules, movie reviews, crime, foreign affairs, etc. Environment, ecology, pollution, the quality of life, are not considered everyday affairs as other news is.

No information agency or news service exists which is capable of producing on a regular basis such news for print, radio or TV.

The newsletters and weekly and monthly publications specializing in environmental matters are aimed at their own target audiences. No general news program on the environment has been developed because there is no irresistable demand for one and/or because nobody thought of it.

Conclusions and Recommendations

We propose development of a PBEC Communications Service.

Staffing:

The Service would be staffed with a Director and personnel needed for a research-query operation for users, a daily radio news program, a weekly television news program, liaison with public radio and television stations throughout the country and promotion of PBEC activities and services. The staff duties would be integrated so that some of these activities would be done by the same people.

Objectives:

The principal objectives of the Communications Service would be to maintain maximum information interaction within the public television industry, to provide high-quality, practical research and program assistance to the stations and to report reliably, objectively and interestingly on environmental developments.

Research Support:

The Communications Service would provide research assistance for individual public radio and television stations and NET and other appropriate users to provide substantive research assistance for their programs and community and education activities in the environment field. The Service would be, in effect, the research division of each station and the Service would actively encourage the stations to use it.

Such divisions simply do not exist now. Many program ideas and ambitions have been cancelled because of the lack of this research and writing support.

Another inhibition to stations' scheduling certain types of programs is the failure to locate qualified producers and writers. We propose to maintain a list of highly qualified producers and writers who could be available to individual stations for specific program assignments. These producers and writers would not be PBEC staff members, but free-lance and other experienced personnel whom PBEC has found and appraised for their professional skills and availability for such assignments. Provision of these persons by PBEC would be, where appropriate, part of the cost of grants by PBEC for station programs.

The Communications Service would provide periodic, possibly monthly, state-of-the-art monographs on environmental subjects of current interest. These would augment existing literature in the environment field and would be oriented to specific problem areas, updating the lastest information from other sources. Examples of subjects: the latest facts and findings on pesticides and herbicides--an area where presently there is a great deal of information but it is dispersed and little of it is hard fact; the status of the proposal for an oil refinery and port facilities at Machiasport, Maine -- a classical example of a variety of social forces in conflict and of economic interests vs. ecological considerations -- which has universal implications; an updating of the status of laws, legislation, Congressional activity and other legal aspects of environmental matters; a discussion of the economic, social and cultural implications of changes in the environment. environment.

These monographs obviously would have interest beyond the public broadcasting field. Their purpose would be to keep those interested up to date on large popular issues in the field, to broaden the knowledge of PBEC in other constituencies, to use the experience and expertise developed by the Communications Service staff and to stimulate program ideas and activities within local stations and their communities. Preparation of the monographs would not be confined to PBEC staff; some would be contracted out to professional experts or firms, where appropriate.

Communication within the Industry:

PBEC will have to communicate frequently with each station in public television and radio and with other national groups in public television, maintaining as well a liaison between these groups and appropriate governmental and environmental organizations in Washington and elsewhere. Thus, PBEC is the focus of a lively network of information exchange about the environment. No more newsletters or magazines seem appropriate at this time, although a regular publication on environment matters and how the American citizen is handling them may be quite justified in the future, when experience and results so indicate. Meanwhile, we propose to communicate as follows:

1. Direct communication - letters, telephone, TWX, interconnect, personal visits. PBEC's challenge and opportunity is to encourage the 96 CPB-qualified public radio and 198 public television stations to make use of PBEC's material, and to appreciate the support facilities available to them. We must "sell" our research and other services, creating a "market" where the potential user has not noticed the need. These methods are especially important at the outset of our activities.

2. Use of existing communications - we will "piggyback" on existing CPB, NPR, NAEB and other appropriate newsletters, memos and communiques. We have been cordially invited to do so by those involved. These are effective letters which are read in the industry, which is important because harrassed station managers read little else,

3. Regular publication - after the Communications Service has been in operation for a few months, a more regularized, probably weekly, communique may be in order. It

would carry information about programming, projects in progress, experiences among the stations and listings of new acquisitions in the PBEC library and film searches--a running commentary that will be highly informative, readable, brief and suggestive of the continued importance of the environment field.

News Service

1. Radio - PBEC proposes to produce a daily (six-a-week) five-minute radio news broadcast which would be moved on the NPR network. NPR officials have encouraged this project and asked that we work closely with them in its development. The news program would be highly interesting, pertinent, lively and surprisingly topical in content. It will often "scoop" general news media simply because of its intense concentration on one broad subject--environment. It will, of course, cover popular developments found in other media, but it will bring an extra measure of expertise and insight to the news. The Communications Service division will provide the news content for the program.

The daily news program may be somewhat on the format of the daily "Lockheed Digest" now heard over radio, but it would include more tapes and real-life situations and less straight narrative.

2. Reporters - reporters feeding the news programs will probably be those actually reporting the news items on the microphone. They will combine their radio and journalist talents with an expertise in environment matters. As part of the Communications Service team, they will contribute to inter-industry exchanges as well as to the monograph program.

3. Television - these same reporters and perhaps others will also be involved in a weekly five-minute summary of news on the environment for television. This program will be a segment of the hour-long "Quality of Life" program proposed by PBEC.

B. PUBLIC AFFAIRS

The Center has determined that a public affairs effort is required to maximize public awareness of the Center, its purpose and its products; to relate directly to local, state and federal governmental bodies and agencies; to encourage and enhance mutually productive relationships with national and local organizations and institutions, and to promote the widest possible use of the Center's programming and services by broadcasters and others, through aggressive advertising and other promotion efforts.

Having made this determination, the Center has created a public affairs structure consisting of three units--government relations, public relations and promotion, with a director of public affairs supervising all three.

Specifically, the Center wishes to:

Become and remain knowledgeable about Federal Government actions, such as legislation in Congress and Executive Branch action; similarly acquire knowledge on state and local ordinances, rules and actions which affect the Center and respond accordingly, with the assistance of organizations which may share the Center's objectives; to make certain that there is a point of contact for every Federal or state or local agency which may have a need to related to the Center.

Stimulate public recognition of the Center as a prime source of environment information and programming through mention of the Center in the news media, through the communications channels of national and local organizations, and through education institutions such as universities, nationally and internationally.

Promote use of the Center's products by public broadcasters, and promote a demand for those products among the public users in the home, in the classrooms and elsewhere, through aggressive advertising techniques.

Establish and maintain mutually beneficial relationships with media, industry, educational community and national organizations, especially those with local chapters with which the Center and public broadcasters could work to further the overall goals of the Center.

To accomplish the aims set forth above, the Center proposes the creation of a Public Affairs Office with three units.

1. Government Relations

a. Federal

(1) Congress - Keep track of legislation, maintain relations with Congressional staff and others involved

in passage of bills affecting education, the environment, public broadcasting and related policy.

(2) Executive Branch - Maintain close contact and information interaction with personnel at the President's Council on Environmental Quality, Office of Education and others at the Department of Health, Education, and Welfare, at the Model Cities Administration of Housing and Urban Development, at the Department of Interior, at the Environment Protection Agency, and at other departments and agencies to learn of activities which might affect the Center, and to explore mutually beneficial relationships.

b. State and Local - Become familiar with relevant state and local regulations, make certain liaison is established with state television, education and environment agencies.

c. Organizational Relations - Establish and maintain mutually beneficial relationships with the Center's own advisory bodies, with local environmental action groups, with national organizations and their local chapters, and with universities for maximum information interaction.

2. Public Relations

Media Relations - Prepare press release, call news conferences when appropriate, maintain press contacts, and respond to press inquiries. Maintain liaison with commercial broadcasters and cable television for use of PBEC materials.

3. Promotion

a. Advertising Agency Supervision - Assure that an advertising agency is promoting with the public and the other possible users of our services and products, the most compelling aspect or aspects of the Center, so as to stimulate maximum utilization of the Center's efforts nationally.

b. Development - Conceive occasions and accept invitations for, arrange and schedule and prepare material for speeches and other appearances by the Executive Director of the Center and others.

APPENDIX IX

MANPOWER TRAINING AND COORDINATION

Table of Contents

A. Introduction

B. Findings

    1. Manpower and Training Needs

    2. Cooperating Agencies

    3. Funding Sources

C. Conclusions

APPENDIX IX
MANPOWER TRAINING AND COORDINATION

A. Introduction

An extensive investigation has been made of manpower and training opportunities and needs in the field of environmental protection and control from the perspective of the Public Broadcasting Environment Center's (PBEC's) ability to have a meaningful and measurable impact in these areas.

This study reveals: (1) that important and substantial manpower and training problems exist which demand the application of multiple resources by different kinds of institutions, including communications media agencies, and (2) that more extensive information about manpower and training needs and more carefully conceived training programs are essential if agencies such as PBEC are to devise rational and effective programs for meeting real manpower and training needs.

At the same time, however, there are promising developments. Government and educational institutions have begun to collect the essential manpower information, to initiate cooperative manpower planning, and to formulate curricula appropriate for the emerging employment opportunities in this field and for the abilities and needs which potential enrollees bring with them to the training experience. In addition, it is expected that increasing government investment in this field will improve conditions of employment on all levels.

It is appropriate to note the considerable support among leaders in government and education for expanding upon present utilization of electronic media in all sorts of educational and training institutions. In his education reform message to Congress, President Nixon advocated the creation of a National Institute of Education, one goal of which would be "to increase the use of the television medium and other technological advances to stimulate the desire to learn and to help teach."[1] Similar recommendations made by the Commission on Instructional Technology appointed by HEW urged expanded Federal efforts to coordinate research into new teaching methods, citing present deficiencies in instructional technology quantity and quality.[2] Moreover, there are signs of an increasing emphasis within the Department of Labor upon the utilization of new audio-visual media to provide a high quality, uniform level of vocational training.[3]

B. Findings

1. Manpower and Training Needs

Only two studies even begin to provide comprehensive, useful analyses of the specific kinds of employment opportunities and the training required therefore in different branches of environmental protection and control: (1) Manpower and Training Needs in Water Pollution Control, submitted by the Department of the Interior's Federal Water Pollution Control Administration (now called the Federal Water Quality Administration (FWQA) to the U.S. Congress on August 2, 1967, and (2) Manpower and Training Needs for Air Pollution Control, submitted to the President and Congress through the National Air Pollution Control Administration (NAPCA) within the Public Health Service of the Department of Health, Education, and Welfare (HEW) in June of 1970.

These studies, and figures released through the Federal agencies, reveal substantial needs for attracting manpower to the environmental field. Such needs exist on all job or skill levels, which are divided customarily into three dominant classifications: (1) Professionals, including engineers, scientists, sanitarians, and technologists; (2) Technicians, who may be involved in research and development, operation of pollution control and treatment facilities, design and construction of facilities, and regulatory activities; and (3) Technicians' aides, who are most often responsible for equipment operation and maintenance, as in sewage treatment plants, or for rudimentary inspections.

Estimates for all areas of environmental health provided by the Environmental Health Service within HEW show total 1975 manpower needs of 130,000 professionals, including 33,400 engineers, 27,300 scientists, 29,800 sanitarians, and 44,500 technologists; 138,000 technicians; and 154,000 technicians' aides. Moreover, manpower demands in excess of supply are calculated as follows: professionals - 1968, 50,500; 1975, 55,000; technicians - 1968, 15,000; 1975, 28,000; technician's aides - 1968, 24,000; 1975, 31,000.[4]

Manpower needs are most exigent in the water pollution control area, which is the best developed branch of environmental control technology. These needs necessarily will be even more severe over the coming years, at least if plans to accelerate construction of water treatment plants are realized. However, other branches of environmental technology currently in developmental stages, especially air pollution control, should bear larger proportions of manpower needs in this field as they mature over the next few years.

Even apart from anticipated mushrooming of manpower needs which will accompany expanded efforts in the environmental field by government and the private sector, there are several factors which account for present manpower shortages: (1) Inadequate salaries; (2) Poor working conditions; (3) Low job prestige; and (4) Insufficient opportunities for advancement, especially for paraprofessional personnel.

These problems are particularly severe in under-subsidized local and state government agencies responsible for treatment, disposal, and/or regulation of various kinds of pollution. It is such agencies that are expected to bear the major share of manpower shortages and absolute needs in the environmental field. In 1967, for example, it was reported that approximately 20,000 persons were employed as operators of municipal sewage treatment plants, with a projected increase to 30,000 by 1972.[5] Similarly, there is evidence that state and local agency staffs concerned with air pollution control will need to be increased from 2,837 budgeted positions in 1969 to 8,000 by 1974.[6]

Therefore, direct control over these factors lies primarily in public, legislative bodies and in administrative agencies with delegated authority in the environmental field. In a direct and immediate sense, there is little that broadcasting institutions can accomplish here. Nonetheless, it would seem that television and radio broadcasting might play an important role by documenting and dramatizing these problems, thereby generating support among public leaders and their constituents to allocate the resources necessary to solve them.

The prevalence of these problems as determinants of manpower shortages does not suggest that efforts to expand and improve training opportunities will not bear fruit. There is no question that deficiencies in the quantity and quality of training opportunities also contribute to present and prospective environmental manpower shortages on paraprofessional levels. Furthermore, such deficiencies have resulted in large numbers of paraprofessional positions being filled by poorly qualified personnel. And, expanded training programs may help to develop career ladders for paraprofessionals and to make jobs in this field more appealing for manpower on all levels.

This analysis does not hold true for professional manpower in this field. With few exceptions, such professionals are the product of Baccalaureate or more advanced college degree programs, most often in traditional disciplines related to environmental control such as chemistry, engineering, or microbiology. In view of the significant degree of specialization which characterizes professional responsibilities in this field, it is manifest that such college programs are best suited to produce trained professional manpower.

Professional training for this field is also provided in college and university programs directly associated with environmental protection and control. Federal funds and technical assistance help to support many of these programs. The NAPCA, for example, supports graduate courses in air pollution control at over 33 universities.[7] Water resources centers in each state, with grant support of the Office of Water Resources Research (OWRR) of the Department of the Interior, provide training for professionals in all aspects of water resources, including pollution control. During 1965-66, 13,650 water-oriented students were enrolled in these institutions.[8] In addition, graduate training grants and research fellowships are made available to universities and their students by the NAPCA and the FWQA.

In any case, there appears to be no significant need for new instructional media to improve the quality of such training. Other learning resources are readily accessible within the college community, and individual research is a prominent, and sometimes dominant, approach to training.

On the other hand, it is clear that changes in training approaches and in the number of training opportunities are essential to meet technician manpower needs in environmental protection and control. Customarily, technicians have been expected to hold an associate degree from a junior or community college. However, it is possible that other kinds of institutional or on-the-job training might be considered equivalent to 2 years of post-high school training for purposes of making one eligible for a technician-level job.

Hitherto, such training largely has focused not on environmental protection and control, but on disciplines related to this field. To the extent that technician manpower normally has been allocated to specialized areas of responsibility, such training has been appropriate.

However, there is a growing recognition among employing and training institutions in this area of a need for technicians versatile enough to assume various kinds of responsibilities in related jobs, or job clusters. Broader training focused on environmental technology is required to produce such manpower.

Examination of existing training programs reveals that they are by and large failing to provide such training. At least 65 associate degree programs in environmental technology are operational within community and junior colleges, but most concentrate on particular branches of this field, such as wastewater control.[9]

Cooperative efforts have been initiated to develop this kind of program on a large scale. In the summer of 1970, representatives from 21 community colleges in all areas of the country gathered in the Community College Environmental Ecological Technician Education Workshop at Denver, Colorado to develop curricula guidelines for training "interchangeable technicians." Plans call for subsequent sessions for actual curriculum development.

Naturally, materials designed to provide such a disciplinary training for environmental technicians do not exist. The critical need for these materials has been articulated by the community college consortium described above.

Expanded and improved training programs are also required to meet manpower needs for technician's aides in environmental protection and control. These employees typically come to their positions through on-the-job training and experience following employment in a maintenance or helper capacity. With the development of more complex facilities, however, higher levels of education and training may be required, especially long-term courses within technical-vocational schools and community colleges.

Short-course training of several days or weeks may be inadequate for new personnel without related training or experience, although this has been a common route to employment. Such training, however, is surely needed to upgrade present aides, many of whom are poorly trained for their jobs. This is especially true for sewage treatment plant operators and for incinerator operators engaged in solid waste treatment.

Beyond such short courses offered by State agencies and through regional centers of the FWQA and the NAPCA, only scattered and piecemeal training programs are operational. Some are offered with funding obtained through the Vocational Educational Act of 1963, as amended, in community colleges and technical schools. Others only recently have been initiated in community colleges, technical schools, and skill centers with funds provided under the Manpower Development and Training Act (MDTA).

Relevant government agencies and training institutions are expressing an increasing awareness of the need to recruit disadvantaged youth to entry-level paraprofessional positions in the environmental field. The bases for this concern are essentially two-fold: (1) Disadvantaged youth represent a largely untapped pool of manpower resources which might fill otherwise unoccupied jobs, and (2) As the disadvantaged assume worthwhile positions in this field, a waste of human resources will have been abated. Nevertheless, virtually no provision is made in existing environmental training programs to meet the special job training needs of the disadvantaged. For example, research uncovered only one Federally funded environmental training program providing regular basic education instruction to bring the reading and mathematical skills of enrollees up to job requirements.[10]

Current training materials, even those designed for programmed instruction, are written uniformly on an eighth to tenth grade level. For the most part, conceptual and skill lessons are offered in classroom and on-the-job settings, respectively, without serious attempt to integrate the two.

Large numbers of films and slides which may be useful in training environmental paraprofessionals are generally available. The films, however, largely consist of conceptual lessons in related scientific disciplines, while the slides' usefulness is limited primarily to the illustration of concepts developed in lectures on environmental technology.

In these respects, shortcomings in training for environmental jobs largely reflect broader failures of the general art of manpower training. Traditional approaches, curricula, and materials have proved unsuccessful in stimulating and training the disadvantaged. Seemingly, vocational education and job training institutions, with Federal support, are best equipped to tackle this enormous problem.

Indeed, progress has been made through experimental and demonstration programs sanctioned by Federal manpower training legislation.[11] Among other things, such projects have demonstrated the necessity of the following strategies: (1) Basic education tailored to occupational goals and integrated with specific skill training must be available; (2) Extensive orientation to the world of work should be provided; and (3) So-called "disadvantaged youth", from the onset of training and on a continual basis, must be made aware of the jobs for which such training is being provided in order that motivation be sustained.

It is apparent that modern instructional media must play a role in these efforts. By virtue of its powerful appeal to non-rational visual senses, television may be able to stimulate the interest of disadvantaged trainees. Moreover, electronic media materials may permit circumvention of the obstacles to training which written materials represent for trainees with poor reading skills. In addition, electronic media may bring real work situations and problems into the classroom setting when actual on-the-job training, or even field trips, are impractical.

Several factors applicable to the manpower and training situation for all paraprofessionals, including technicians and aides, in environmental protection and control suggest the particular importance of developing and testing television, radio, and other instructional media for this area: (1) A shortage of qualified instructors, especially for providing broad, disciplinary training. New materials can permit de-emphasis of the role of the instructor as the primary source of learning and provide high-quality instruction in specialized areas; (2) The broad range among potential trainees in terms of achievement levels and learning rates. Therefore, materials are needed which will permit individualizing of learning; and (3) The need for a circular curriculum, including materials which would permit enrollees to undertake different lessons at different times. Such need is dictated by the problems of absenteeism, inefficient use of materials, and intermittent coming and going of trainees.

3. Cooperating Agencies

Research into manpower and training opportunities and needs in the field of environmental protection and control discloses several institutions which, by virtue of their existing and planned programs, may be suitable partners in any manpower efforts undertaken by the PBEC.

Two are the FWQA and the NAPCA which have, in the areas of water and air pollution respectively, investigated manpower and training needs in environmental technology, sanctioned directly training programs, and provided technical assistance and financial support, obtained from Federal manpower programs, to other training programs. Current emphasis by FWQA lies in developing programs to train water and wastewater Treatment plant operators (on the technicians' aide level) in conjunction with State agencies, community colleges, and skill centers and with funding support under the Manpower Development and Training Act (MDTA). Such programs trained close to 2,000 operators in 1969.[12] Although NAPCA has focused its energies largely on training programs designed to recruit professionals to air pollution control jobs, it plans to expand its support of technician training programs from two institutions in 1970 to 20 institutions within a few years.[13] Also, it will help employer and training institutions to tap Federal manpower funds for different levels of paraprofessional training.

Planning and coordination of programs may be greatly simplified and rationalized if plans to collect all Federal operational responsibilities with respect to environmental protection and control into one new agency came to fruition. Such an agency, to be called the Environmental Protection Agency, has been proposed to Congress by President Nixon.[14]

Cooperative efforts may also be developed with the consortium of community colleges which has developed curricula guidelines and plans to develop actual curricula for the training of manpower for jobs in environmental protection and control[15] and with other community colleges and vocational schools. Similarly, compacts to develop materials may be entered into with State agencies responsible for the employment and training of manpower in this field.

To examine manpower areas appropriate for focusing PBEC's energies, it may also be appropriate to enlist the assistance of agencies such as Manpower Assistance Project, Inc., with expertise in the field of manpower and training programs.

3. Funding Sources

As programs are initiated, it is expected that operating funds therefore would be solicited from foundations and businesses in the private sector, from local and State governments, and especially from Federal agencies, perhaps with the assistance of the FWQA and the NAPCA. The most promising avenues for financial support for the production and use of materials envisaged in this project lie (1) in educational legislation which pertain directly to the development of new educational media and (2) in manpower and training and vocational education legislation which explicitly provide funds for experimental and demonstration projects and for curriculum and materials development and testing.

Included in this former group are the National Defense Education Act of 1958, which has made close to $30 million available for research and demonstration projects in educational television;[16] the Educational Facilities Act of 1962; and the Higher Education Act, which has provided considerable funds to educational institutions for the purchase and repair of television equipment.

The primary sources for the latter kind of support are the Manpower Development and Training Act of 1962, as amended, (MDTA) and the Vocational Education Act of 1963, as amended.

For FY 1970, an estimated $42,126,176 is being provided for environmental and health training through MDTA institutional programs.[17] In large part, such training is afforded at community colleges, technical schools, and skill centers. Over $15 million will be allocated to experimental and demonstration projects for FY 1971.[18] Under the Vocational Education Act of 1963, as amended in 1968, grants are available for developing, testing, and disseminating instructional materials.

C. Conclusions

The kind of super-effort required by the private sector and by the government to address effectively the environmental and ecological problems which confront our society is only possible if there is sufficiently trained manpower in different branches of environmental technology and on different job and skill levels. Meeting these manpower and training requirements is a critical task which demands the application of multiple resources by different kinds of institutions.

As suggested above, television and radio, as problem-documenting and as instructional media, are inherently equipped to make major contributions to this effort, particularly as suitable manpower and training strategies are developed by government and vocational education institutions. Therefore, the manpower and training aspect of the environmental and ecological field merits the attention of the PBEC.

In view of the breadth of manpower and training problems in this field and the failure heretofore of the manpower and training art to resolve them, it is clear that PBEC should not aspire to a dominant role in finding answers for these problems. Contrariwise, it is evident that PBEC may play an important subsidiary, cooperative role to help effectuate, through its unique media capacities, the efforts of the government and vocational education institutions in this field.

To undertake this kind of role, it is incumbent upon PBEC to identify the institutions and programs which promise to have a positive impact upon environmental manpower problems and which would profit from effective media utilization. It is then necessary that PBEC, in conjunction with such institutions, plan and develop programs to produce, test, utilize, and distribute media and materials related to manpower and training in the environmental field.

The capacity to accomplish these tasks must be developed through establishment within PBEC of a manpower office.

The nature of manpower and training problems in the environmental field suggests the propriety of examining during 1971 the practicability of initiating the following kinds of efforts in cooperation with other institutions:

(1) Planning and securing production of television materials on manpower and training in environmental protection and control. These materials might be prepared for distribution through the Public Broadcasting Service on a national basis.

They would be designed to effectuate the following outcomes: (a) Raise the prestige of environmental and ecological jobs in the eyes of the general public; (b) Elicit thinking on the part of students, the employed, and the unemployed, especially those with scientific or engineering inclinations, about possible careers in this field; (c) Alert the disadvantaged, skilled, and semi-skilled workers as to possible training opportunities; (d) Catalyze government legislators and administrators within community corporations and community action agencies and academic and vocational education institutions to organize, on an individual or collective basis, training programs; (e) Generate public support for an expanded and coordinated manpower planning and training system to be funded primarily by the Federal Government; (f) Generate support among the general public and among appropriate government legislators and administrators on the local, State, and regional levels for increased expenditures to raise salaries and improve working conditions for environmental protection and control personnel; and (g) Stimulate re-examination of job classifications in order that meaningful job criteria may be established which will provide career ladders in environmental protection and control.

These goals might be most readily attained through several magazine-format television programs utilizing case studies, comparative analyses, and human interest stories devoted entirely to documenting and dramatizing how training programs in environmental technology are generated and organized, the kinds of training that are available, the need for manpower and expanded training opportunities, and the kinds of efforts that governments on all levels are making with respect to environmental manpower, with a plan of action for government officials and community action organizers.

In addition, case studies of individual employees within the field of environmental protection and control could be produced. Each might focus in on the individual's workday--his responsibilities and the kinds of satisfactions and frustrations he finds in his job.

It may be most effective to incorporate these case studies within broader, parallel television programs on environmental problems. This should serve to enhance treatment of the problem by showing how a person can do something about the problem on a day-to-day basis. On the other hand, prior documentation will serve to underscore the importance and the worthwhile nature of jobs to control that problem.

(2) Assist in the coordination and production of local and state television and radio programs paralleling, amplifying, and localizing treatment of manpower and training problems in the national series. These programs would be prepared for use primarily over local educational broadcasting stations and secondarily within closed-circuit systems in schools and vocational training institutions. One outcome of this kind of endeavor could be to continue the proven benefits of local coverage without sacrificing the quality of production and instruction and without leading to a haphazard approach to a problem both national and local in scope, two pitfalls which local production customarily entails.

Fundamental objectives of this kind of production in terms of environmental protection and control largely would parallel goals of the national-scale production. However, programs should be designed to focus on regional and local problems of particular concern.

Production on the local level might include, but not be limited to, the following kinds of programming: (a) Community action shows on the local level in which people can phone in questions and suggestions; (b) Short messages to inform the public of specific training opportunities; (c) Short messages to encourage the private sector to support environmental manpower training programs and to hire the disadvantaged; (d) Programs designed to inform the public and students about careers in environmental protection for use by local broadcast stations and by closed-circuit systems within schools and training institutions; (e) Enrichment type shows in mathematics, science, and engineering to supplement actual training in environmental protection and control. For use by local broadcast stations and closed-circuit systems in vocational training institutions; and (f) Television and radio shows providing direct, basic education instruction.

(3) Plan and secure production of high quality and imaginative training materials, including video-tapes and audio-tapes, films, programmed instruction, and learning kits, to be used within specific training programs in environmental technology. These materials would be designed: (a) To provide instruction in specialized areas where available teachers may lack expertise; (b) To train manipulative skills through "follow-me" demonstrations; (c) To bring actual job situations into a classroom setting when field trips may be impractical; (d) To stimulate trainee interest in training subject matter and in vocational opportunities in environmental protection; (e) To enable greater individualizing of instruction and learning; (f) To provide direct, remedial basic education skills and orientation to responsibilities of the work world for disadvantaged trainees; and (g) To lighten the burdens on vocational instructors and diminish their role as the dominant source of learning in training programs.

Naturally, the relative importance of these objectives would vary depending upon the job levels for which training is offered. However, several factors suggest that production efforts should concentrate on meeting the training needs of paraprofessionals, including community college programs for technicians and community college, technical school, and skill center programs for technician's aides: (a) It is in these areas that instructor shortages are most severe and present training materials are of poorest quality; (b) Disciplinary training increasingly will be offered on these levels, and generalists are not available to cover the broad subject matter; (c) The quality of training programs for professionals is already of a high standard; (d) Administrative regulations designate that 60% of MDTA funds, which represent the largest source of funding for new training programs, must be utilized to train the disadvantaged;[19] and (e) To the extent that the disadvantaged are trained for worthwhile jobs in environmental protection and control, multiple benefits will accrue--manpower for preserving our natural resources will have been provided and a waste of human resources will have been abated.

(4) Plan and coordinate a pilot program to investigate the possible uses of electronic media for training environmental technicians and technicians' aides. Such a media implementation and testing center for environmental training can serve in several important capacities: (a) It may evaluate various uses of different types of media and materials within the training context; (b) It may test the effectiveness of specific materials developed by the PBEC and related production resources, as well as specific materials developed by other sources; and (c) It may examine potential utilization of live television and radio transmission within a single classroom or institutional closed-circuit system. The potential impact of this program lies not simply in the extent to which it publicizes its findings, but in its value as a prototype for media centers in other community and junior colleges and skill centers.

(5) Provide consultation and direct technical assistance to local efforts by community colleges, skill centers, government agencies, and private employers to improve training for environmental jobs through the communications media. This can be done in part by producing and distributing films showing media uses within the community college media project.

FOOTNOTES

1. Manpower Information Service, Vol. I, No. 13, p. 14 (The Bureau of National Affairs, Inc., March 11, 1970).

2. Ibid., p. 15.

3. Ibid., No. 2, p. 9 (October 8, 1969).

4. Environmental Health Manpower Supply and Requirements - 1968 through 1980. Environmental Health Service, HEW, December, 1969, as provided in Manpower Information on the Environmental Technician (National Sanitation Foundation, Ann Arbor, Michigan).

5. Manpower and Training Needs in Water Pollution Control, p. 2 (Report of the Department of the Interior, Federal Water Pollution Control Administration, to the Congress of the United States, August, 1967).

6. Manpower and Training Needs for Air Pollution Control, pp. 3-5 (Report of the Secretary of HEW to the Congress of the United States, June, 1970).

7. Air Pollution Training Programs, pp. 1-23 (HEW, Public Health Service Publication No. 1542).

8. Manpower and Training Needs in Water Pollution Control, supra note 5 at p. 3.

9. Post-Secondary Curriculums in Environmental Technology (National Sanitation Foundation, Ann Arbor, Michigan, August 11, 1970).

10. Manpower Information Service, supra note 1, Vol. I, No 17, pp. 9-10.

11. See Breakthrough for Disadvantaged Youth (U.S. Department of Labor, Manpower Administration, 1969).

12. Note 10, supra.

13. *Manpower and Training Needs for Air Pollution Control*, *supra* note 6 at p. 13.

14. *Environmental Quality* - The First Annual Report of the Council on Environmental Quality together with the President's Message to Congress, pp. 294-305 (August, 1970).

15. Community College Environmental Ecological Technician Education Workshop, *Final Report*, (Denver, Colorado, June-July, 1970).

16. J. Murphy & R. Gross, *Learning by Television* (The Fund for the Advancement of Education, 1966).

17. *Estimated Total MDTA (Institutional) Environmental and Health Training Effort for FY 1970*.

18. *Ibid*.

BIBLIOGRAPHY

Texts and Reports

Air Pollution Training Programs (HEW, Public Health Service Publication No. 1542).

Breakthrough for Disadvantaged Youth (U.S. Department of Labor, Manpower Administration, 1969).

Clean Water for the 1970's - A Status Report, pp. 68-72 (U.S. Department of the Interior, Federal Water Quality Administration, June, 1970).

Community College Environmental Ecological Technician Education Workshop, *Final Report*, (Denver, Colorado, June-July, 1970).

Environmental Quality - The First Annual Report of the Council on Environmental Quality together with the President's Message to Congress. (August, 1970).

The Hidden Medium: A Status Report on Educational Radio in the United States.

S. A. Levitan and G. L. Mangum, *Federal Training and Work Programs in the Sixties* (Institute of Labor and Industrial Relations, Ann Arbor, Michigan, 1969).

Manpower Report of the President, including *A Report on Manpower Requirements, Resources, Utilization, and Training* (U.S. Department of Labor, 1969).

Manpower Report of the President, including *A Report on Manpower Requirements, Resources, Utilization, and Training* (U.S. Department of Labor, 1970).

Manpower and Training Needs for Air Pollution Control (Report of the Secretary of HEW to the Congress of the United States, June, 1970).

Manpower and Training Needs in Water Pollution Control (Report of the Department of the Interior, Federal Water Pollution Control Administration, to the Congress of the United States, August, 1967).

J. Murphy & R. Gross, *Learning by Television* (The Fund for the Advancement of Education, 1966).

T. F. Stroh, *The Uses of Video Tape in Training and Development* (American Management Association, Inc. 1968).

L. S. Goodman, "Training Aids," *Training and Development Handbook* (American Society for Training and Development, 1967).

Articles in Periodicals

D. P. Barnard & H. A. Herbert, "Closed Circuit Television-Progress Report," 55 *Industrial Arts & Vocational Education* 65 (1966).

Bulletin of the National Association of Secondary School Principals (October, 1966 - whole issue).

H. R. Cassirer, "Some Thoughts about Educational Television," 12 *Audio-Visual Instruction*, pp. 1017-18 (Nov. 1967).

K. B. Culver, "New and Promising Uses of ITV," 12 *Audio-Visual Instruction,* pp. 910-14 (1967).

B. Dutton, "Instructional Television," 56 *Industrial Arts & Vocational Education* 71 (Sept. 1967).

Manpower Information Service, numerous issues of Volume I, (The Bureau of National Affairs, Inc., 1969-70).

A. L. Martin, "Leadership Training by Television," 16 *Adult Leadership*, 141-3 (October, 1967).

L. Moss, "Evaluation of a Television Course," 34 *Educational Forum* 401-6 (March, 1970).

D. E. Smoker, "Southwestern Cooperative Educational Laboratory - Adult Basic Education Project," 17 *Adult Leadership* 73 (June, 1968).

"Training Unpolluters," *Manpower*, pp. 16-20 (May, 1970).

Miscellaneous Documents

Activities of the Bureau of Adult, Vocational and Technical Education which Relate in Environmental Education (HEW memorandum addressed to Logan H. Sallada, April 2, 1970).

Bulletin of Air Pollution Training Courses July 1970 through June 1971 (Environmental Health Service Office of Manpower Development, HEW, July, 1970).

Bulletin of Courses July 1969 through June 1970 (Institute for Air Pollution Training, Public Health Service of HEW, July, 1969).

Careers in Water Pollution Control (New England Regional Wastewater Institute, Southern Maine Vocational Technical School, South Portland, Maine).

A Comprehensive Training and Placement System for Certain Priority Populations for Supporting Roles within the Emerging Field of Environmental Management (MDTA Proposal).

E. Mackin, Environmental Management Technology (January 26, 1970).

Estimated Total MDTA (Institutional) Environmental and Health Training Effort for FY 1970.

Fundamentals for Chemical Plant Operators (DuPont).

Good Training. Good Jobs: MDTA - Water Pollution Control Operator (U.S. Office of Education)

Manpower Planning Program (Memorandum from Acting Assistant Commissioner for Operations to Regional Directors, Department of the Interior, Federal Water Pollution Control Administration, February 13, 1970).

Post-Secondary Curriculums in Environmental Technology (National Sanitation Foundation, Ann Arbor, Michigan).

Manpower Information on the Environmental Technician (National Sanitation Foundation, Ann Arbor, Michigan).

APPENDIX X

ENVIRONMENTAL EDUCATION

MANDATE:

EDUCATION THAT CANNOT WAIT[1]

"Intelligent environmental action, however, cannot await the emergence of a new generation whose environmental literacy is the product of education from kindergarten through 12th grade and beyond. Therefore, major attempts are underway to educate and motivate the present adult population, primarily through the mass media and community projects, focusing on local problems.

"During the past year every broadcasting network and major newspaper and magazine has written on environmental problems. To assure a sustained educational effort through media, the U.S. Office of Education, Department of Health, Education and Welfare, awarded funds to the Corporation for Public Broadcasting to establish an Environment Center. The center will provide television programs and radio materials designed to increase public awareness of environmental problems. It will help prepare teachers for environmental education and train others for careers in environmental management industries."

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1. Council on Environmental Quality, Environmental Quality (First Annual Report), U.S. Government Printing Office, 1970, p 223.

Table of Contents

page

CHALLENGE 493

CONCLUSIONS

Broadcasting is a Powerful Tool 497

Environmental Education Needs Imaginative Programs 500

In General, Education Is in Crisis 505

RECOMMENDATIONS 510

Schools and Teachers 511

Teacher Training 513

Integration with Present Emerging Educational Techniques 513

Community Action 515

PBEC Planning 515

Environmental Education Programs 517

Components for a Total Environmental Program 518

Application of Materials 520

Detailed Objectives 522

Universal Themes 524

Summary of Recommendations 526

Description of Program Components 529

Television Program Segments 529

Local Television Programs 535

Radio Programs 540

Materials 542

Program Development Procedures 545

Preliminary Development 546

Pilot Testing 546

Field Testing 546

Production and Distribution 546

Final Release and Post-Development Revision 546

Development Time Sequence 546

Development Overview 547

Contractors 548

Operations Charts 549

Milestones 552

Dissemination 553

Introduction 553

Local Stations and Schools 553

Workshops 553

Dissemination Chart 551

Evaluation 555

Introduction 555

Developmental Evaluation 556

Pilot Evaluation 556

Field Testing 556

Needed Development Information 557

Staff and Facilities 560

Staff for Creation and Development 560

Facilities Within an Organization . 560

PURPOSES, OBJECTIVES AND TASKS OF ORIGINAL PBEC PLANNING GRANT

Purposes 561

Objectives 562

Tasks 563

DEVELOPMENT METHODS USED TO HELP MEET PBEC PLANNING GRANT OBJECTIVES 565

Surveys 568

PBEC Environmental Education Surveys 568

Other Surveys and Reports Utilized 570

Understanding of Environmental Problems and Opportunities 573

Working Philosophies and Definitions of Environmental Education 576

Awareness of Educational Styles, Content and Direction 580

Awareness of Broadcasting Potential 593

EXHIBITS

Exhibit 39a - Potential Pathways Materials.599

Exhibit 39b - Sample Relationships of Learning Objectives and Environmental Education Components 602

Exhibit 39c - Principle Curriculum Study Groups Pre-College Education in Science . 603

Exhibit 39d - Useful Environmental Education Programs, Materials and References 604

Exhibit 39e - Some Survey Sources 614

Exhibit 39f - Basic Organization 615

Exhibit 39g - An Overview Bibliography for Environmental Education for the Future ... 616

Exhibit 39h - Estimates of Educational Television Audiences, 1965, 1966 623

Exhibit 39i - Equipment/Media Relationships and Considerations 626

THE CHALLENGE*

What are the trade-offs? Two cars for 20 per cent poorer air? What would you take to breath poorer air? Only 10 per cent poorer air? $10 a week? $100 a week? $10,000 a week? How about a job versus no job? How about electricity? What would you accept for slightly polluted seas? What would you accept, just for your unconscious acceptance if not conscious tolerance of urban blight, suburban sprawl, and a plastic Wurlitzer world and throw-away resources? And which man are we defining things for? How will men define things for themselves?

Environmental Education is more than just a chance to sell old curriculum under new labels, new methods as new content or a paste of "relevancy" to hold together old processes and products which are falling apart.

Environmental education is the latest opportunity to do the job we have always clumsily tried to do, to truly educate our people. A new title, a new label, will make available new money and new opportunities for new starts without all the skeletons associated with earlier educational orientations and processes.

It is strange but from one viewpoint environmental education would not exist as an entity if Education had changed quickly enough to meet the needs of a rapidly actualizing pluralistic society. In curious ways, we are seemingly suddenly faced with a multi-headed monster called at times, the ecological crisis and at others, the environmental disaster. All such labels imply value judgements but for the purposes of this paper, without argument, accept the general interpretation that the present ecological balance and state of the environment is less desirable than that which existed 1000 years ago and even 10 years or 10 months ago. If the value defined directions of the continued changing ecological balance are in truth as stated, even the last 10 days has resulted in an ecological balance men would increasingly prefer to avoid and in environments less healthy than before.

Part of the crisis orientation is our general belief that men, men everywhere, lack common understanding of their present environmental status. "If they knew," goes such thinking, "they would never stand for it." Unfortunately, the gloom peddlers are out full force with prediction of environmental hell-fire and brimstone if we don't pay our dues and move away from mindless, hedonistic ecological excesses. But how long can these latest and newest evocations for a stronger reestablishment of the corroding puritan ethic proselytize and command obedience? These people, these ministers of guilt, are now talking to folk who have lived through atomic bomb scares since '45, the fallout shelter crisis, the assassinations, and the continued granulated slaughter of mankind in Southeast Asia. Each new warning, each new big scare develops its own rhetoric of excess. However, only the young, the youngest, are really hit and they are hit because its their first big scare. The slightly older often become bored with their first big scare and shop around for a new scare (sometimes called purpose) in which they can find "relevance," in which they can identify the essence of their own struggle and find the stimulation of an in-group call. Slogans directed to action and the promise of a test of moral fiber and life strength, evoke zest for life in ritualistic dedication. Too often such promises only fade and are forgotten as gimmicks of excitation.

---

* An unpublished paper by Madison E. Judson, June, 1970.

For many of the older among us, the people, it is just the latest symbolic and simultaneous call to adrenaline and paranoia.

The Blacks are right. At least for many, environment is a cop-out. The developing Black issues were getting too uncomfortable, too hard to understand in our tell-me-what-to-think media.

Environment is safer. No discussion of class war, race war, economic war, political prisoners, moving people around, redistributing wealth, opportunity, titles and washroom keys. Just look what the Blacks started. Now we have trouble with Chicanos, Indians and Women.

The "environment" seems easier. "We just want everyone to have cleaner air, water and soil." Here too are traps of ambiguity as well. Because existing and extrapolated if/then claims become confounded as we increasingly realize and identify a growing number of such claims we may avoid the essence of our present opportunity as well. It will become more confusing as we realize we don't understand microbiology or interface physics any better than we did the macrocosm of our society, or the how of how people are and have been with each other and themselves. Whatever the route of inquiry, if we go far enough we come face to face with the essential ambiguity of our personal existence, we reach the edge of verbalization where nothing seems discrete. We are involved in the fear of leaving what we know.

Assume for the moment that we were able, somehow, to cause the air, water and earth to be pure (actually, we don't really want them pure as various scientists could explain and various popularizers do explain) or at least cause them to be in their most preferred states. Now what would man do with these new options, these new resource potentials, these new potentials to create even better total environments, personal, physical and social? What indeed, if he lacks awareness of what the environmental choices are, of how to create new environmental options/possibilities and recognizes the legitimacy and the impetus to utilize them? Then and only then will all people, all of us, be involved in constructing the "good life" for all people, all of us. Only then will humanity recognize its partnership with all living things and all life processes.

To bring about the preferred environmental resources, action is needed--personal action, community action and governmental action. Growing understanding of accountability, mutual and open accountability will help. Beginning with the development of public information resources, services and forums and the establishment of regular public disclosures, accountability will thrive. Aristocratic arrogance of titles, habits and outdated systems are being washed away and new dignity is developing for all groups and will for all people.

Both awareness and action; expanding, maturing awareness and constructive, enhancing action programs will be assisted by a conscious education approach which is truly both useful and stimulating. Without excitement, utility meets the searching needs of too few and without utility we offer primarily a cool entertainment or a passive once-a-week religious feeling which would pass however pleasing it is during the "service."

Programs are needed which educate, which educe by being both useful and stimulating. They must attract us wherever we are and hold us whoever we are. They must help us over all to recognize and understand the essential elements necessary for each of us to better see ourselves, both now and tomorrow, and to feel happy about both; to comprehend our surroundings both now and tomorrow and to feel ever better, ever joyous about the worlds we are building.

CONCLUSIONS

Broadcasting is a Powerful Tool

The evidence is overwhelming that television can be an effective teaching aid. "Television is probably the greatest source of common experience in the lives of children."[2] Indeed, it can be an aural/visual experience we all share, to talk about, to learn from or just ot have as the experiential bank each individual develops.

"Geographic mobility used to be almost the sole vehicle of spreading social mobility. Certainly one of the chief elements in the development of America was the mass migration into a new challening situation. But in our own day, the earlier increase of physical experience through transportation has been multiplied by the spread of mediated experience through mass communication. The media, he says, have disciplined Western man in those emphatic skills which spell modernity. They also portrayed for him the roles he might confront and elucidated the opinions he might need."[3]

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2. Schramm, W. et al., Television in the Lives of Our Children, Stanford University Press, 1961.

3. Lerner, Daniel, The Passing of Traditional Society, Free Press, 1958.

Broadcasting can take people places they would not otherwise go, it can provide experiences otherwise rarely possible. Viewpoints that previously would have gone unknown, unshared, become fused into the common experience of a mass audience. Broadcasting reveals to all relationships that would otherwise have gone largely undetected and shows all men, all issues and places to be part of one large network of interdependency.

Broadcasting for educational purposes has been a threat to some, and an educational panacea by others. Actually, except for the Children's Television Workshop, Sesame Street, very little television has been educationally exciting or useful. Television for educational purposes is more an unawakened Goliath. Even so the average child will spend 15,000 hours watching television before he finishes high school.[4] Indeed, television must be used more excitingly and usefully. "We have said that the media can help in education and training, and have thus distinguished what they can do in these fields from what they can do in imparting information. In other words, we have said that the media can do the watchman's and reporter's job unaided, but that they can only help the teacher. This is because education and training are more than the transmission of information. They require a purposeful growth, a learning of skills, a systematic building of knowledge, a preparation for action. This is accomplished best when there is an interpersonal link in the process--a teacher to work with the pupil."[5]

And it is for this reason that arguments against greater use of media in education which are emotively based must end. "Classroom television is not a religion, a cause, a curriculum, a course of study, or even a method of teaching. To argue 'for' or 'against' it is absurd, and both its advocates and detractors demonstrate their personal limits of vision and sheer stupidity in the naivete and well-meaningness of their puerile propaganda. Classroom television is today--

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4. Nixon, Richard M., Education for the 1970's, U.S. Government Printing Office, 1970.

5. Schramm, W., Mass Media and National Development, Stanford University Press, 1964.

and will become more so in the future--a condition of educational promise. No medium is a message, as the Canadian guru would have it. But if ITV has a message for us, it is the simple notion that quality education for all our children, according to the infinite variety of their aspirations, is not an impossible dream, just a difficult one. Classroom television may help it to come true."[6]

The potential for educational effectiveness has been demonstrated. The economic effectiveness is unusual because of the mass audiences. The affective use of public television has started and is spurred on by the Corporation for Public Broadcasting and by the Children's Television Workshop. However the unused power of television is far greater and the needs are great.

Certainly in the environmental field broadcasting can:[7]

1. Widen environmental horizons.
2. Focus attention on environmental opportunities and dangers.
3. Raise environmental aspirations.
4. Create a climate for environmental development.
5. Help social enforcement of environmental quality.
6. Help form environmental tastes.

"If you would recognize a fact when you see one and make the most of it, there are the, four things about any fact that you must be clear about: It is necessarily incomplete, it changes, it is a personal affair, and its usefulness depends on the degree to which others agree with you concerning it."[8]

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[6] Gordon, G., Classroom Television, Communications Arts Books, 1970.

[7] The list is based on W. Schramm's Media and National Development, Stanford University Press, 1964.

[8] Schramm, W., "Words and Not-Words," Mass Media and Communication, Hastings House, 1966.

Environmental Education Needs Imaginative Programs

The primary conclusion of our effort was in agreement with the Congressional statement that we need "... to encourage and support the development of new and improved curricula to encourage understanding of policies, and support of activities designed to enhance environmental quality and maintain ecological balance; to demonstrate the use of such curricula in model educational programs and to evaluate the effectiveness thereof; to provide support for the initiation and maintenance of programs in environmental education at the elementary and secondary levels; to disseminate curricular materials and other information for use in educational programs throughout the Nation."[9]

It was found that existing educational programs tended to be one of four types: *

1. Design awareness
2. Academic ecology
3. Outdoor/conservation education
4. Environmental technician education

As described, each of these approaches tended to be used alone. As a result, importance of the interaction of perceptual processes, socio-cultural systems, ecological facts, values and possibilities for now and for the future would all risk being diminished. Yet all are essential to an understanding and awareness of environments, general or specific, and their processes. How else could man develop not only a view of himself in and of environments, but also as a creator consciously and unconsciously, of environments which could deteriorate the quality of life or enhance it.

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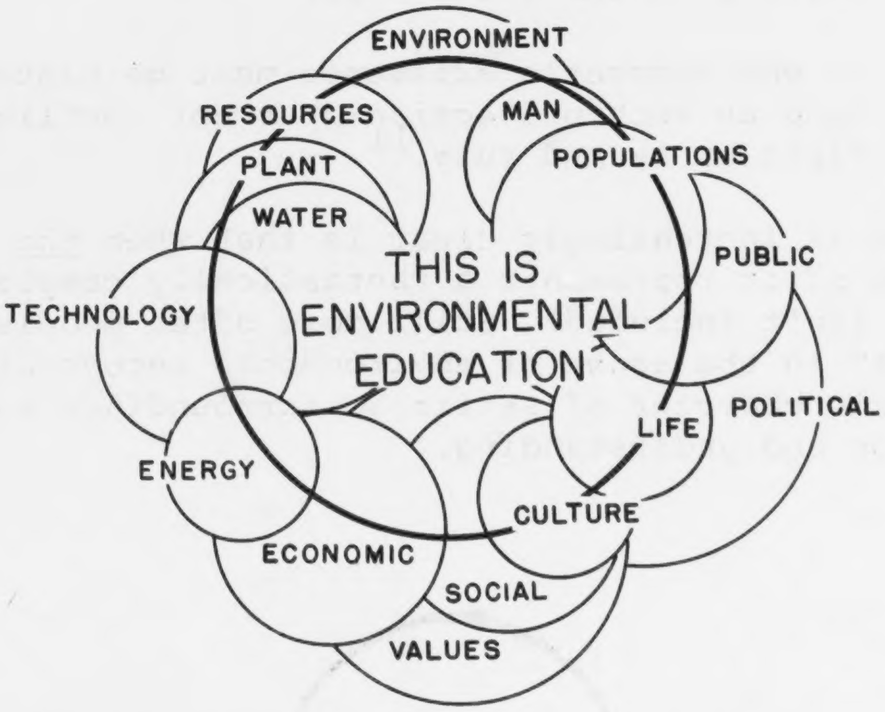
9. Public Law 91-516, 91st Congress, H.R. 81260, Environmental Education Act, October 30, 1970.

* See Exhibits C-E and also Survey Section, pp. 568-572.

Environmental Education[10]


ENVIRONMENT
RESOURCES
MAN
PLANT
POPULATIONS
WATER
THIS IS ENVIRONMENTAL EDUCATION
PUBLIC
TECHNOLOGY
POLITICAL
LIFE
ENERGY
CULTURE
ECONOMIC
SOCIAL
VALUES

The Domain of Environmental Education

As the planning and research effort progressed, three rules seemed to emerge from the great overlap and superficially conflicting claims for environmental priorities by various groups of individuals. These rules promote the growth and development of man but recognize that healthy environments are essential if mas is to be healthy.

Possible rules for the use and conservation of environments:

1. Environments must promote the health of human beings and it cannot be that as a result of unalteration, environments allow human beings to come to harm.

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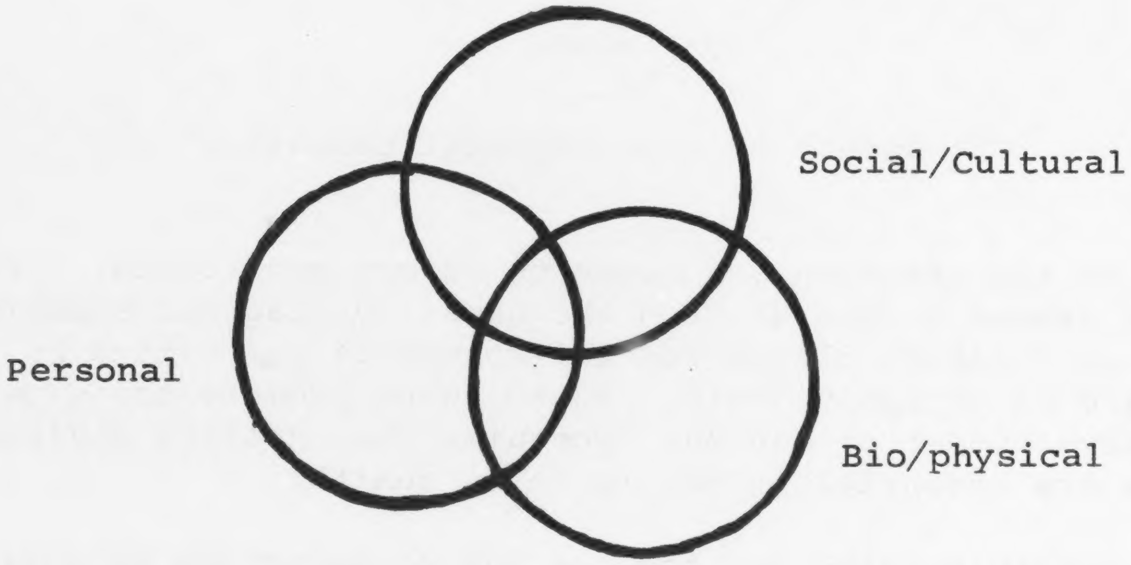
[10] Archbald, D., and P. Gundlach, "Environmental Education: an Integrated Approach," Environmental Education, Vol. I, No. 3, Spring, 1970.

2. Environments must be changed as the needs of human beings change except where such orders would conflict with the first rule.

3. An environment's existence must be protected as long as such protection does not conflict with the first or second rule.[11]

What is increasingly clear is that when the environment is spoken of it represents a fantastically complex cosmos, for what isn't included? Still more often people use "environment" in the sense of environments recognizing the pluralistic charcter of settings, surroundings and man's perception and understanding.



ENVIRONMENTS
or
THE ENVIRONMENT

There is little disagreement with Joachim Wohlwill when he points out that:

"We can confidently venture a prediction that the near future will see the construction of novel types of environments for living, ranging from individual dwellings to whole cities and regional communities here on earth--to say nothing of the possible colonization of the moon and conceivably other planets. The imaginative and exciting proposals for the city of the future provide a taste of what we may look forward to in this regard. Such proposals are inevitably predicated on critical assumptions about behavior, about the use of space and environmental facilities, about preferences in regard to features of the environment, about tolerance for and adaptation to particular environmental conditions. It is hardly too soon for psychologists to become acquainted with and actively participate in these plans, so that we can be assured that these assumptions are based on an adequate foundation of psychological fact and tested theory. To a discipline that has for all too long paid lip service to the primary importance of environmental variables on behavior, this should represent an exciting challenge indeed."[12]

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[11] Based upon Isaac Asimov's I, Robot, Crest, 1950.

But as this is true for psychology, so it is true for all man's disciplines. All people need to become better environmental watchmen, to detect environmental dangers and opportunities. All people will need to become better environmental decision makers, contributors to group and governmental environmental policies as they develop and alter their own personal environmental ethic. All people need to learn environmental skills and values to better enable them to meet not only yesterday's crisis and today's growth, but what Eric Toffler refers to in his book Future Shock.

Certainly all environmental programs or projects must have or develop the goals of an effective upgrading of environmental awareness and understanding of environmental issues and alternatives confronting the people of this Nation. Also important is encouraging development of personal and community values which may result in programs of action for healthy and better quality environments.

Recommended primary goals would be to help develop:

1. Environmental Awareness: Environmental literacy for each individual from and within his own personal, cultural/social, and biotic/physical worlds.

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[12] Wohlwill, "The Emerging Discipline of Environmental Psychology," American Psychologist, Vol. 25, No. 4, April, 1970.

2. Environmental Facts and Values: Understanding of environmental factors and opportunities so people will be encourage to resolve life solutions within their own developing environmental values.

3. Environmental Action: Both the cognitive and affective skills necessary for environmental action.

A definition of environmental education developed by the PBEC education group which seemed to best include the multiple orientations any such educational effort must encompass is:

> Environmental education is the development of personal awareness, understanding and action in relation to the experience and change of nature as well as the nature of experience and the nature of change.

In General, Education is in Crisis

"...STOP THREATENING ME! That's what I wanted to shout in my classrooms. If you don't cover your book by Wednesday ...if you don't have your homework written on outlined paper ...if you don't bring your dollar for Student Government... if you don't keep quiet...if you don't stop...if you don't start...you'll be punished.

"Good God, there must be some other way."[13]

The plea this person made is now that of a chorus comprised of students, parents and many teachers. The specific educational needs of a community, a neighborhood, a school, a classroom, and especially a child will ever more require communications and educational techniques which are local, ever more specific and ever more personal.

Nathan Isaacs, writing in Children Learning, says that "Children learn most effectively where the following three conditions are fulfilled:

a. Where they themselves want to know: i.e. to secure the answers to questions originated by them--to find out more about something that has aroused their interest--to solve problems and to discover causes and explanations;

b. Where they enjoy the stimulus of free discussion among themselves, with the teacher acting as helper and pathfinder, and not as either an army instructor or an oracle;

c. Where they have the chance of actively seeking out their own answers, and--with the aid only of queries or suggestions, pointers or hints from the teacher --can experience the thrill of making their own discoveries."

This is consistent with both the findings and the experience of the PBEC education group as is the following description of a visitor to a better school in Great Britain:

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[13] Tornabene, Lyn, I Passed as a Teenager, Simon and Schuster, 1967.

"If he arrived at the official opening hour he would find that many of the children had been there long before him, not penned in the playground, but inside the school, caring for the livestock, getting on with interesting occupations, reading or writing, painting, carving or weaving or playing musical instruments. Probably some of the teachers would also be early, but whether they were there or not, would not affect what the children were doing. The visitor might be surprised to notice that when the bell rang, if there was a bell, no very obvious change took place. As the morning went on he would see various pieces of more organised activity, backward readers being taken as a group, an assembly of the whole school for prayers and hymns, an orchestra, some movement, some group instruction in mathematics, some exploration outside and so on. During all this time he would hear few commands and few raised voices. Children would be asked to do things more often than told. They would move freely about the school, fetching what they needed, books or material, without formality or interference. Teachers would be among the children, taking part in their activities, helping and advising and discussing much more frequently than standing before a class teaching. Mid-morning break and even midday break for lunch would show little change and at the end of the day there would be no sudden rush from school, leaving an empty building, but a much more leisurely and individual departure, so that important tasks could be finished and interesting questions answered. In this kind of school it is common for some of the older children to spend two or three weeks away with their teacher in another environment. In this way many children have their first experiences away from the family in a secure setting, and also an opportunity for getting to know their teachers better."[14]

Actually this description is the elementary school counterpart to the trend to inter-disciplinary approaches in high schools and colleges. All of which are more in touch with the nature of life and the study of environments and ecology than is the conventional curriculum. However, if teachers are to provide or to create more joyous, exciting and effective learning environments there are needs they have which must be met as well. One inescapable observation of our research and planning is that teachers in general need opportunities in which they can find:

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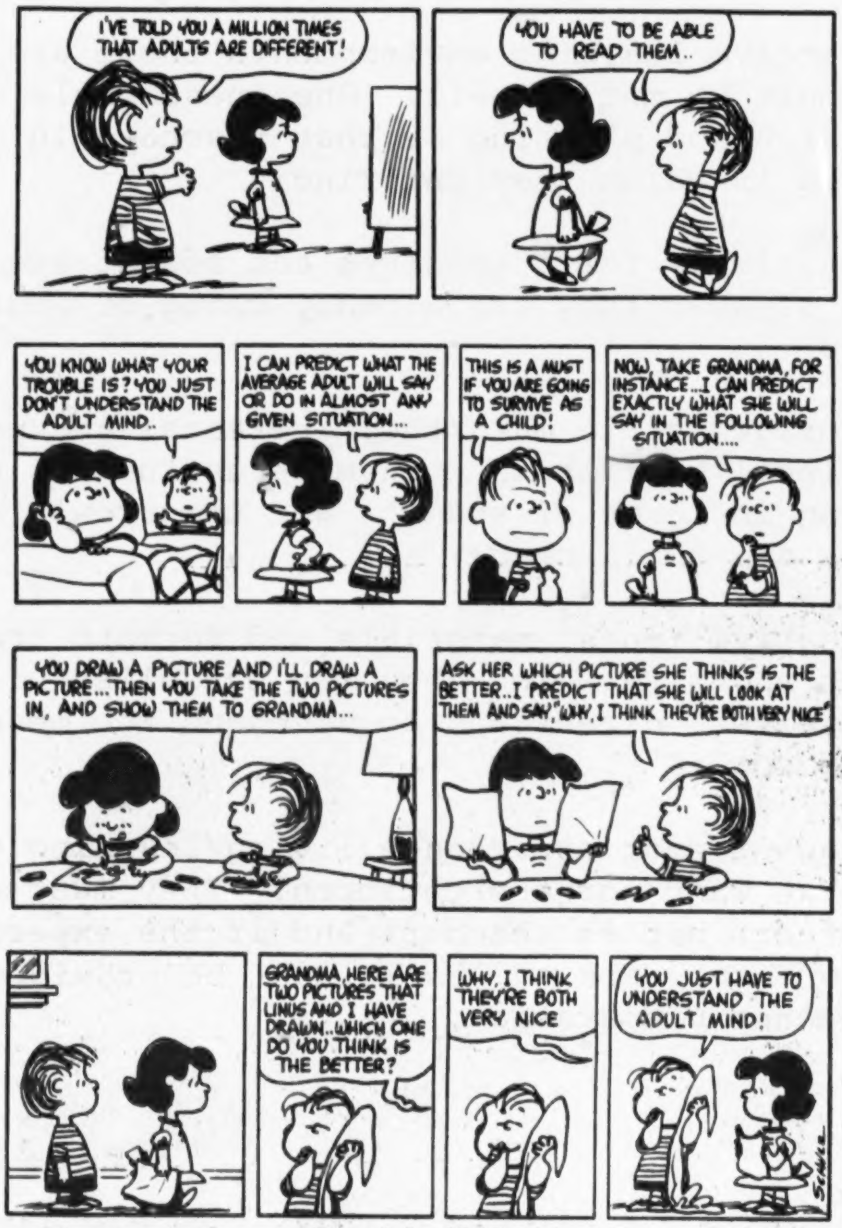
[14] Plowden Committee, Children and Their Primary Schools, Vol. I, Her Majesty's Stationery Office, a government report, 1967.

--a legitimacy for themselves and for at least some of what they are already doing or want to do;

--encouragement to make their personal and professional activities even more useful and stimulating in terms of today's and tomorrow's attitudes and skill needs;

--suggestive ideas, materials and formats from which and with which they can establish, for themselves, directions to move and the means to do so.

The teacher must experience living/learning environments of the type we want for the children. They must experience them as learners not as teachers and if the experience is not their's before they are adults it must be provided as the style of their teacher preparation.


I'VE TOLD YOU A MILLION TIMES THAT ADULTS ARE DIFFERENT!
YOU HAVE TO BE ABLE TO READ THEM..
YOU KNOW WHAT YOUR TROUBLE IS? YOU JUST DON'T UNDERSTAND THE ADULT MIND..
I CAN PREDICT WHAT THE AVERAGE ADULT WILL SAY OR DO IN ALMOST ANY GIVEN SITUATION...
THIS IS A MUST IF YOU ARE GOING TO SURVIVE AS A CHILD!
NOW, TAKE GRANDMA, FOR INSTANCE..I CAN PREDICT EXACTLY WHAT SHE WILL SAY IN THE FOLLOWING SITUATION....
YOU DRAW A PICTURE AND I'LL DRAW A PICTURE...THEN YOU TAKE THE TWO PICTURES IN, AND SHOW THEM TO GRANDMA...
ASK HER WHICH PICTURE SHE THINKS IS THE BETTER..I PREDICT THAT SHE WILL LOOK AT THEM AND SAY, "WHY, I THINK THEY'RE BOTH VERY NICE"
GRANDMA, HERE ARE TWO PICTURES THAT LINUS AND I HAVE DRAWN..WHICH ONE DO YOU THINK IS THE BETTER?
WHY, I THINK THEY'RE BOTH VERY NICE
YOU JUST HAVE TO UNDERSTAND THE ADULT MIND!
SCHULZ

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Learning skills of analysis and synthesis as they apply to and are a part of life is only rarely part of planned school occupations. Only indirectly do children, do people, learn about how other people really live, work, build and dream. So it is with those life concerns represented by environmental education. When they are allowed to enter the classroom they are usually treated as, or only allowed to exist as formal, dry and lifeless considerations or pedantisms about life or life systems.

One other note which is really addressed to a mutualistic philosophy of man, environments and education: "Relevancy in education? What could be more relevant and practical than to use your surroundings as your classroom? Such an approach need not involve another bout with wildlife charts and the naming of trees and rocks, although to some, that's all environmental education amounts to. But relevant environmental education is more--it includes all the people, all the things, and all the places that surround you. The entire universe, in other words, is the textbook, and what you read in it is going to relate to everything that happens in the classroom. The question is, how do you get environmental?"[15]

Indeed, how do you get educational? Certainly we don't yet have final answers but we do have excellent knowledge about the directions to go.

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[15] National Park Service, National Environmental Study Area Guide, U.S. Government Printing Office, 1970.

RECOMMENDATIONS

One of the constraints in achieving the objectives will be time. The state of the environment requires the maximum utilization of all possible educational opportunities.[16] A program of education as traditionally conceived simply will not do.[17,18] Education efforts cannot be restricted to children alone, for the environmental concern must be answered with a sense of hope, understanding and purpose for all people. The energies of all must be given constructive avenues of growth, development and improvement to aid a re-establishment of national unity and pride. Public broadcasting can make possible a simultaneous general education effort in which children and adults both are reached, sometimes alone and sometimes together but always in effective ways, in unique ways and for mutual reinforcement. It is fortunate that in the face of crisis on the environment we have at our disposal the technological capacity to reach vast audiences. Television, radio, films, audio and video cassettes, satellites, computer communications are all advanced to the point where we have the electronic and mechanical means to effectively assist in the environmental education and motivation of 200,000,000 Americans.

An environmental education venture must be created which will have the possibility of reaching students of all ages and their teachers. Educators need environmental education programs to help them evoke and reinforce environmental awareness, understanding and actions which are constructive, self-sustaining and self-renewing.

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16. Council on Environmental Quality, Environmental Quality, First Annual Report, U.S. Government Printing Office,1970.

17. Silberman, Charles, Crisis in the Classroom, Random House, 1970.

18. National Goals Research Staff, Towards Balanced Growth: Quantity with Quality, U.S. Government Printing Office, 1970.

To meet these pluralistic needs the mass communications potential of public broadcasting must be used.[19,20] Therefore, a total environmental education program must have multiple components, each overlapping and complimenting the others. These components would be vehicles for the realization of personal involvement in the creation, preservation and utilization of desirable environmental alternatives.

Here would be an opportunity to break the cycle of the alienation of man, child and adult, and the environments of which he is part. It is truly "education that cannot wait."[21]

To do this people need to know what their resources and options are; that they can have confidence in their capabilities to create better total environments, personal, physical and social; and that they can become involved in the creation of preferred environmental conditions through constructive personal action, community action and governmental action.

Both awareness and constructive action programs could be assisted by a solidly planned educational approach, which would use the maturing medium of TV in new ways to reach the broadest range of Americans. The design would have to be one to attract people to participation wherever they are. Overall, it would aid in the recognition and understanding of the essential elements which help people to better see themselves, both now and tomorrow, to feel happy about both, to comprehend their surroundings both now and tomorrow and to feel ever better, ever joyous about the worlds they can build.

Schools and Teachers

Schools are already under attack from competing and conflicting pedagogic claims and threats. Each school must

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[19] Coleman, James S., "Education in the Age of Computers and Mass Communications," presented at the Johns Hopkins University/Brookings Institute Lecture Series, "Computers, Communications & the Public Interest," December 11, 1969.

[20] Carnegie Commission on Education Television, Public Television: A Program for Action, Bantam Books, 1967.

[21] Council on Environmental Quality, Environmental Quality, U.S. Government Printing Office, 1970.

create its own path of development and change if it is to be effective. Therefore schools and teachers need materials which do not impose still another "right" way to do things. Materials provided to schools must not be a closed curriculum or program in themselves and must be able to be used in a variety of ways. Further they must suggest directions they could be adapted towards so they will best meet local and special needs. The same materials need to be usable as:

1. a program
2. part of a program
    a. augmentative or supplementary
    b. as a program nucleus
    c. as a way into a different program
3. a stimulus to other innovation
4. a stabilizer to other curricula.

The materials need to have as much potential as possible to :

1. Put teachers in situations where they could break down the barriers between them so that they can more readily communicate.

2. Give teachers opportunities for personal growth through accepting and working toward a goal held in common with others.

3. Give teachers an opportunity to work on the problems that are of direct, current concern to them.

4. Place teachers in a position of responsibility for their own learning as well as the learning of others.

5. Give teachers experience in a cooperative undertaking.

6. Help teachers learn methods and techniques which they can use in their own classrooms.

7. Help teachers have an opportunity, in collaboration with others, to produce further materials that will be useful in their teaching.

8. Help teachers be put in situations where they will evaluate their own efforts.

9. Give teachers opportunities to improve their own morale.[22]

Teacher Training

The compelling need for teacher training in the introduction of new curricula or teaching strategies has been documented many times. In the case of environmental education efforts bolstered by a large media input, teachers must not only learn alternative styles and content but the use of media. In some situations teachers will want to learn the academic subject matter itself as well as develop greater sense of commitment to action on behalf of the environment. The readiness with which they facilitate student learning in and of healthy environments could well be one expression of their commitment.

The major training demand will, in all likelihood, be of an in-service variety. Some teachers will be expected by their schools to serve as environmental education resource personnel and to develop alternative approaches to specialized subjects (e.g., social studies, science), to incorporate an environmental emphasis and to help others do so.

Teacher training must incorporate opportunities for experiential learning. Special attention needs to be given to the skills of interspersing traditional subject matter with environmental topics when necessary. Discussion leading skills, particularly in value formation, use of current events, how to develop and administer out-of-school activities in environmental activities, using media effectively for maximum advantage, how to develop scripts, films or other media approaches in the classroom, are all important. Environmental understanding and knowledge is important in all of these but the specific forms it takes must be left in the hands of accountable and immediate teachers of teachers.

Integration with Present Emerging Educational Techniques

It needs to be emphasized that, even when the primary communications form is broadcasting, the content and goal must be education. Broadcast media can be excellent tools for accomplishing educational objectives. However, they do not replace well trained and motivated teachers; they do not substitute for reinforcement of the values in environmental education coming from parents; they do not supplant classroom discussion, personal observation or work projects.

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[22] Based on E. Kelly's Workshop Way of Learning, Harper & Brothers, 1951.

Programs, products and processes must be designed to mesh with the best of current and future educational techniques and practices.

In the context of a quality educational program, materials for educational impact must introduce or take advantage of educational approaches which research and development are finding to be effective in the learning process. These approaches include:

1. Individualization: Recognized access of local materials will allow students to follow their own interest in the order in which they best serve their sense of utility and excitement. Kits or packages or curriculum adaptable materials would afford immediate flexibility to the teacher as well as to school administrators.

2. Teachers as participants in joint learning endeavors with students, where together they plan and evaluate the educational approaches and content.

3. Learning both in-school and outside the "four walls:" Learning grows from the world-real experiences of projects which exist beyond the school day and beyond the school boundaries. Parent dialogue can extend this learning to the home, following TV programming. Ideas for participation in community action projects can further enhance environmental learning. Teachers, students and parents need help in learning how to talk to each other.

4. Understanding of human development and technological development must be afforded through the very nature of environment subject matters. Strengths and limitations can be explored. There needs to be a spirit of experimentation and lively inquiry and discussions aimed at value formation in the complicated field of environments.

5. The interconnectedness of knowledge needs to be reflected through the integrated subject matter of environmental ecology, a theme which includes what are now largely treated as discrete subject matter areas.

6. Cooperative relationships with non-school agencies, with important education possibilities could bring together many different education efforts. These could include, among others, such agencies as the local medical society, labor union, manufacturing plant, college or university and community organizations concerned with recreation, conservation or social welfare, libraries, parks and museums.

7. Techniques of involving students as teachers need to be developed.

8. Teacher training needs to be characterized by environment education through value formation discussions. The use of media and present curriculum and pedagogical innovations could help.

9. Experimentation and innovation with ever adjusted evaluation and feedback systems which would lead to continuous improvement need to be developed.

Community Action

One exceptionally important idea is to create self-education kits for public service and community groups who would like to develop deeper knowledge and understanding of environments and their problems and how to effect environmental changes determined to be critical by the community itself. Educational materials could be used by those interested in more than surface rhetoric. Their use could help prepare a foundation for more knowledgeable leadership and for the ways individuals and groups take constructive action towards the development of preferred community environments. Educational materials could help meet the need for personal growth and change through useful and stimulating involvement and activity.

PBEC Planning

To make some of this possible, PBEC is planning and recommending programs, products and processes, of the following kinds:

1. Television: A one hour, once-a-week, general audience television series called "Quality of Life" which will have educational segments.

2. Television and Radio: The development of audio/visual broadcasting programs or program segments for local station use either by themselves, as parts of a larger locally created program or as spots.

3. Local Broadcast Stations: The encouragement of local station programming through grants and technical assistance to focus on local opportunities and needs.

4. Materials: The development of printed educational material, cassettes, kits and other visual and audio forms for in-school use. These could be articulated with broadcast efforts.

5. Organization: To have PBEC work with national, regional and state organizations to enhance the use and excitement, in schools and out, of the environmental education program. These groups would include, among others, the U.S. Office of Education and chief State School Officers, NEA and its State counterparts, U.S. and State Chambers of Commerce, and of course the Corporation for Public Broadcasting.

6. Teacher Training: Develop local consortium arrangements through national, regional and state relationships. State educational agencies could train school designees to:

   a. Understand environmental problems themselves.

   b. Work with other teachers responsible for one or another aspect of environmental education, e.g. science, social studies, humanities.

   c. Plan for use of the "Quality of Life" programming and its related broadcast, or any other audio-visual and print materials.

   d. Administer the plan in school and evaluate its effects.

7. Parents: As part of the plan for involving parents, school or community organizations would be asked to communicate with parents whose children are enrolled in the foregoing programs of environmental education, encouraging them weekly to watch each program. They would also offer a series of suggested topics or questions they might discuss with their children, and activities they may engage in together, either as observers or for action purposes. Home viewing and dialogue will extend and reinforce the in-school education for the child and at the same time, educate the parent toward action in the community.

8. Community: Community environmental action meetings to include both parents and children. These meetings could be televised or taped for showing to the larger community or used in school. One result of this type of programming would be the discussion relating to the problems and opportunities of community action.

Recommendation for Environmental Education Materials for Education Institutions

We recommend the creation of a total environmental education endeavor that will include programming for television and radio and the necessary support materials.

The concepts and subjects of these programs and materials would be adaptable to the styles of students and their total environments and teacher opportunities. Teachers and the teachers of teachers could adapt this four-component package to their own styles and curricula needs.

Recommended Components for a Total Environmental Education Program - LIFE WAYS*

1. Television:

   a. Title: Ways to Go* To be a 39 week 10 minute segment of the weekly TV series, "Quality of Life." Also available on film or in a cassette.

   This segment promotes greater understanding of the uses and abuses of resources and the bio-physical environment. It aids knowledgeable development of an orientation to what could be done. The design is for a wide interdisciplinary study of man's symbiosis with various aspects of the biotic/physical worlds and conflicts with his cultural and social inventions.

   The title is a recognition that there are many ways we can move both personally and as a society. Once we choose a way to move, there are many ways to bring that movement about. A consideration of these interlocking networks of environment uses is essential.

   b. Title: Ways It Is* To be a 26 week 3 minute segment for local station programming use. Also availble on film or in cassette.

   A program for the development of personal environmental sensitivity and awareness. Greater environmental awareness and literacy would enhance both real and potential appreciation and understanding of environments.

   The title is a recognition that there are many ways to look at any environments and many ways environmental elements interact and relate to produce the total environment.

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* The various components of LIFE WAYS are described more fully later in the report along with an initial plan for their creation. These program titles are working titles.

2. Radio:

Title: Byways*	To be a 52 week 25 minute radio program for local station use. Also available on tape or in cassette.

Environmental involvement develops through the power of radio immediacy such as provided by an enacted story or an imaginative live broadcast. This program would add to the development of a workable environmental ethic and would contribute to guidelines for responsible action.

The title is meant to suggest an exploration of little known aspects or viewpoints of environments.

3. Educational Impact Materials:

Title: Pathways*	To be multi-media educational kits designed to derive the highest benefit from the broadcast components.

Pathways are educational materials designed with variations to allow for the best match possible between learner and learning resources. Each learner or group of students working with their teacher or teaching themselves will be able to construct personal pathways.

The title is meant to suggest the multitude of paths that exist and which are necessary to provide for individual ways. When possible, each step along a personally derived path leads to many possible alternative paths. Each person would be encouraged to develop his own personal pathway through learning as he must do through these environmental learning processes.

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* Working titles

Benefits of LIFE WAYS Materials

Film broadcasting segments, audio tapes and learning materials are planned to combine within a wide variety of package designs for individual and group use. The users can design their own sequence and continuity from among a multiplicity of available materials. (Refer to Exhibits 39a, b, d, and i.)

A school group without access to the national broadcast or local braodcast could have the audio/visual segments on film or in cassette. A local broadcast could be negotiated by parents, children and other community members. Radio broadcasts would also be available on tape and in tape cassettes. Learning packages could be utilized to further constructive community action objectives. The educational materials would be adaptable to best reinforce and extend the effect of the radio broadcasts and video telecasts.

The TV broadcasts would primarily be designed as segments of larger programs, but they could stand by themselves with some planning effort to allow for their most effective use or incorporation into other formats. The broadcast components could also be used between full length programs or as a part of a local public service, variety or education program. The broadcasts could also be available for cable, closed circuit or any other TV delivery system. As film, they could be used with a standard 16mm projector or in 16mm film cassette projectors. When possible short segments would be recombined about larger themes and would then be available in that form.

The development of the programs and materials help each person develop his own environmental grammar, to help each person better understand where he is, how he is moving, the directions he could move, the velocities he could attain, the places he could create or reach, what he needs, the effects of his movement and of what he does.

The LIFE WAYS educational impact materials, called Pathways, would be developed for each broadcast effort. Pathways would be appropriately designed and packaged with a specific teacher/learner relationship in mind. The design of the segments are as audio/visual icons of environmental universals. They are produced solely to create these universals as representative of the environments of which they are a part. Pathways would encourage the depth involvement and continuation for both the learner and the teacher. It would be an opportunity to explore and realize the totality of the earth and its processes, the source of all man's environments, as represented in what they can come to see and do in their immediate environments.

One of the educational broadcast components and some of the Pathways would be part of the "Quality of Life" television production and weekly program which is also to be articulated with community action programs, and the Public Broadcasting Environment Center System. LIFE WAYS components directly and indirectly support local station efforts to develop community unity and programming.

Where TV broadcast reception is not possible, the broadcast components could be used as TV tape, cassetes or 16mm film. Where broadcast is available other local staion programming would allow its repetitive use for more optimal timing and impact.

Detailed Environmental Education Objectives

1.0 Environmental Attention

- 1.1 Develops an increasing awareness of environmental qualities and processes.
- 1.2 Develops an increasing appreciation of and sensitivity to environmental patterns and inter-relationships.
- 1.3 Develops an increasing alertness to environmental values and judgments.

2.0 Environmental Responding

- 2.1 Develops an increasing willingness to comply with desireable environmental rules and cautions.
- 2.2 Develops an increasing acceptance of responsibilities for environmental quality and its enhancement.
- 2.3 Develops increasing self-expression and pleasure in environmentally centered activities.

3.0 Environmental Valuing

- 3.1 Develops a continuing desire to learn more effective use of environments.
- 3.2 Grows in sense of kinship with all environments.
- 3.3 Increasing shows an interest in a variety of environmental viewpoints.

4.0 Environmental Commitment of Faith in the Power of Environmental Reason and Methods.

5.0 Environmental Organization

- 5.1 Forms judgments as to the responsibility of society and individuals for enhancing human and other environments.
- 5.2 Weighs alternative environmental policies and practices, developing a plan for their regulation.

6.0 Characterization by an Environmental Value or Value Complex

- 6.1 Shows increasing readiness to revise methods of changing environmental behavior in light of evidence.
- 6.2 Judges environmental problems and opportunities in terms of situations, issues, purposes and consequences rather than in fixed, dogmatic terms, precepts or wishful thinking.
- 6.3 Develops a personal code of environmental behavior.[23]
- 6.4 Develops a consistent environmental philosophy of life.

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[23] Based on B. Bloom et al, Taxonomy of Educational Objectives, David McKay Co., 1964.

8

Universal Themes

The seemingly endless variations of the worlds' environments have in common a variety of universal themes expressed from a variety of viewpoints. The fascinating diversity of all environments is, as it were, generated from the same primal matrix. Many environmentalists including ecologists, urban planners, designers, etc., are aware of these universals in some sense and represent it in their own specialized syntax. They use the universals as guides in analyzing, explaining and working with different environments.

These universals together can comprise an environmental grammar which provides a fundamental contact with the underlying psychological, sociological, anthropological and biophysical principles. An example of one such universal is the observation that everything can be reduced to a structure and an understanding of the structure requires both a consideration of what is being structured and the process of structuring itself. Another example of a universal is: What surrounds a structure either temporally or spatially affects the perception of the structure. Still another example is: A field of harmonious diversity is possible within any one unity.

Some of the general characteristics of universals are:

1. The assertion of an environmental universal must be founded on extrapolation as well as empirical evidence.
2. The assertion of an environmental universal is a matter of definition as well as of empirical evidence and of extrapolation.
3. A universal theme or concept can be widespread or even universal without being important.
4. The distinction between the universal and the merely widespread is not necessarily relevant.
5. The search for universals cannot be usefully separated from the search for a meaningful taxonomy of environments.

6. Universal themes or concepts are most apt to be important if they recur against a background of diversity.

7. The problem of environmental universals is not independent of our choice of assumptions and methodology in analyzing single environments.

Universal themes are like the earth which is shared by all people. How well we learn from it is the learning orientation provided by others, sometimes called teachers, or by other conditions. In the LIFE WAYS components the audio/visual broadcast components will supply the universals and the Pathways educational impact materials and kits will, with a teacher's help, create the learning orientation. Obviously starting with the same universal different ages, different cultures and different end goals will all require different materials to provide the orientation of learning that will best help those in that category.

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24. These assumptions are structured after a model created by Charles Hockert in "The Problem of Universals in Language" in J. Greenberg's Universals of Language, MIT Press, 1966.

Summary of Recommendations

The PBEC concern and recommended effort if enacted would be both national and local in scope; it places its emphasis on the educational process in which communication media and good educational practice are combined. The plan involves local broadcasting stations, community organizations, teachers, parents and children.

It should be emphasized that the recommendations in this section, though based upon the maximum use of national broadcasting capabilities are most concerned with education of citizens at the local level. Great emphasis is placed on the education of school age children and the recognition that children do not learn by or in school alone. Parents, community life styles and organizations greatly affect the child--religious, social service, medical, libraries, museums, parks, etc.--must be considered as part of the network of information and influence in educating the individual.

It is a plan that recognizes that:

"1. The most important thing about any person is his attitude toward other people.

2. The primary need in the building of people is to learn better human relations.

3. Every individual has worth, and has a contribution to make to the common good.

4. Learning leads to more learning, and the human organism is infinitely curious.

5. The most crucial learning at any given time has to do with the individual's current problems.

6. Cooperation as a technique and as a way of life is superior to competition."[25]

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[25] Kelley, Earl, The Workshop Way of Learning, Harper and Brothers, 1951.

Changes, desirable and undesirable, are occurring at rates faster than men can comprehend and absorb them. All nations, as a result, are as emerging nations struggling to harmonize accelerating social alterations, economic reorientations and technological explosion. Rapid rates of change might be unavoidable but increasingly the induced dissonance has made us strangers to our own culture. All of us suffer cultural shock as cultures we knew, those once around us, cease to exist. Still changes are needed, the environmental crisis is evidence of that. Somehow we need to develop a rhythm of change which is "faster than the rhythm of historical change and less violent than enforced change."[26]

"We are facing a period ahead when the very essence of our lives together will rest on how we deal with change in a positive and creative way. That is why we need new ways of looking at change neither as good or bad, not judged as to whether to allow or not allow, but ecologically, which means existentially. Change is going to be. Now how do we work with it?

"All around us our structures are coming down around our ears. Our family structure is disintegrating, our political systems are falling apart, our accustomed moral structure is in question, our country is in a stupid venal war, we are polluting our atmosphere, our land, and our water until it is only a matter of years before this planet will be unfit for human habitation. Worse, we are setting up divisions between our people which are forcing one side or the other to win, rather than allowing us all to gain. We are polarizing black and white, young people and adults, rich and poor, each lashing at the other with the inevitable backlash resulting.

"Just as severe as our eco-catastrophes are the other catastrophes latent in our society: we face social catastrophe, psychological catastrophe, personal catastrophe, national catastrophe, family catastrophe, community catastrophe. It is not enough to say this one or that one is at fault. We need creative mechanisms for change, based on aggregates of self-interest leading to community. We need a score.

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[26] Schramm, W., Mass Media and National Development, Stanford University Press, 1964.

"There are, happily, evidences of attempts to deal with change creatively. Like it or not, most of these attempts lie among our young--our young people and our "young countries." There is clear evidence of a rejection of money grubbing and thingism as a motive in life among a large segment of affluent whites and a drive for a part of the action among the blacks who have been denied it for so long. There is searching for expanded awareness of self, expanded families, and expanded groups. There are attempts at new forms of group living through "communes" into meaningful ways for people to live together, not only for specific goals but also for the process of living together."[27]

We have the means, we have the opportunity, we recommend the PBEC environmental education plan be put into effect.

1. If we want quality environments, we must support promising ideas longer than either private or government programs typically do.

2. If we want quality environments, we must support risk-taking and cushion failure.

3. If we want quality environments, then risks, resources and responsibilities, the 3 R's of environmental education, must be shared by the partners in the environmental education enterprise.

4. If we want quality environments, we must chart our courses by human judgement, not exclusively by formula.

5. If we want quality environments, we must follow through in depth with a small number of diverse alternatives.[28]

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27. Halprin, L., Creative Processes in the Human Environment: RSVP Cycles, Van Nostrand, 1970.

28. Based on A Oettinger's Run Computer Run, Harvard University Press, 1970.

Detailed Description of LIFE WAYS Components

1. WAYS TO GO

Television

39 ten-minutes per segment components, of the weekly hour long "Quality of Life" series in color.

A part of the weekly "Quality of Life" series, this program component is a TV/film segment to develop understanding of the bio-physical environmental challenges for man in his search for increasing enjoyment of life and more than mere survival. It is to be scheduled for 39 weeks as a ten minute segment. As such, the segments could also be used in schools as high motivation, brief color films.

Ways to Go approaches the various personal, socio-political bio-physical interdependence and interactions from an ecological point of view. Analysis methods are used as is an awareness bias; both of which jointly lead to progress in design and creation. These in turn are assessed through personal realization and involvement. Ways to Go focuses on the aesthetic economic and structural aspects of nature of which man is part. The exploration of the interconnectedness of the physical and biotic worlds and their various ramifications is emphasized by man's technological exaggerations.

The program and its educational materials explore ways in which man can effectively and constructively improve his environment as well as how these changes will affect him and other forms of life.

Ways to Go are the ways the networks of effects and possible environmental influences which form the boundaries of individuals and societies, life styles and alternatives. Just as explorers follow a river, Ways to Go follow and use as reference points, the rivers of life and the large ecological and personal growth concepts that are becoming more and more clear. Here the explorers are the viewers, the students and the teachers.

Ways to Go offers to the viewer avenues of understanding along which his thinking might move. Through the segments the viewer can gain an action-based knowledge of current environmental conditions and those possible in the future.

WAYS TO GO

Working Program Outline

Understanding Environmental Opportunities

Segment 1. Ecology and Change

Ecology as change and as a way of looking at change.

2. Definition of Environmental Opportunities

Ecological cost/benefit accounting, and individual perception of the problem/opportunity relationship.

3. Understanding, Using and Generating Environmental Opportunities

Environmental alternatives as the structured results of living choices, the cycling of resources and future planning.

Water

4. People and Cities

Water and people in urban settings.

5. People and the Non-City

Water and people in non-urban settings.

6. Commerce, Industry and Agriculture

Water as transportation, a tool and a building block.

Air

7. People and Cities

Air, people and space in urban settings.

8. People and the Non-City

   Air, people and space in non-urban settings.

9. Commerce, Industry and Agriculture

   Air as a pathway, a medium and a building block.

Land

10. People and Cities

    Land and people in urban settings.

11. People and the Non-City

    Land and people in non-urban settings.

12. People and Networks

    An exploration of the channels along which flow the interactions of man, society and nature.

13. Commerce, Industry and Agriculture

    Land as transportation, a tool and a building block.

14. Coasts, Swamps and Wilderness

    Use and misuse as a resource for man's growth and development.

Weather, Climate and Biomes

15. Man's Influence and Control

    Changes which are growth promoting and growth hindering some of which are intended and some unintended.

16. Evolution

    Longterm changes and implications for man's adaptive patterns, both large and small.

Matter Cycling

17. Mining and Manufacturing

    Collection and recombinations of matter, both as assets and limitations.

18. Waste and Resources - Definitions and Attitudes

    An exploration of the waste of resources.

19. Collection and Storage

    ...of wastes and resources

20. Wastes as Resources and the Waste of Resources

    A total reorientation to the utilization of resources.

Technology Side Effects

21. Sound

    Social, psychological and physical effects of sounds and the confusion of sounds.

22. Electro-Magnetic Radiation as Poison

    Exploration of a growing health problem.

23. Electronic Transmission and Information Confusion

    The proliferation of electronic transmission is resulting in conflicting signals and decreasing reliability of transmitted information and control devices.

24. Biotic Control

    Ramifications of the developing technology to control pests and plants and unintended secondary effects.

Population and People

25. People as Growth

Expanding knowledge and experience of people as an asset.

26. People as Resources

Cycling of people and opportunities.

27. People as a Pollutant

Population movement, confusion and crowding, with relationship to negation of man's potential.

28. The General Public, Its Communities and Institutions

The experience of nature and the nature of experience for people alone and in groups.

29. Education, Institution and Skills

Environmental careers, institutionalized educational changes.

Citizen Participation

30. Personal Action

Direction and power of constructive individual action.

31. Local Group Action

Direction and power of constructive group action.

32. Effectiveness at the National Level

Decision making systems and directional input opportunities.

International Cooperation

33. Heritage

Belongingness on an international scale and what each man has a right to share.

34. Worldwide Programs

Effects of international ecological education.

35. The Ocean as a Forum

The ocean as an opportunity for international sharing and development of mutual understanding.

Present and Future Environmental Opportunities

36. Monitoring and Control

Information gathering, access, input and decisions regarding environmental control.

37. Institutions, Finance and Policies

Systems of organization for trade, travel and communication needs as interrelated with environmental concerns.

38. Creation of Opportunities and the Comprehension of Tomorrow

Total conceptual designs based on ecological/environmental values.

39. People, Posterity and Priorities

Planning and world alternatives in the making.

2. WAYS IT IS

Television

26 three to four minutes per segment broadcasting components in color and for local station use.

As a three minute segment that can fit the need for local station program building, fitting easily into a half-hour package or a station break, or as films in schools, Ways It Is meet the design format of brief single concept films.

Ways It Is are TV/film segments to develop environmental awareness and perceptual literacy. They are for more than passive sensual appreciation and investigation; the viewer or learner is aided in constructing reorientations of his perception of his personal environments and those of which he is part. Themes are explored which are environmentally unifying. Personal, socio/cultural and biotic/physical environments all become more real, more universal, as the learner becomes more aware and more perceptive of environmental universals. Ever greater will be the number of alternatives he can see, that he can create, that he can realize for himself.

Ways It Is recognizes that the many ways in which things seem to exist are determined by both perception, the physical organization of things and their structure. Ways It Is views those processes and organizations which are often commonly thought to be perceived identically by different individuals but rarely are.

It is difficult for people to describe more than just a small part of all that there is or that is happening. But each can become more aware of the nature of what is there or is happening and the nature of how we see and know. Ways It Is will help develop a vision beyond the immediate place, relationship or moment.

Ways It Is has aesthetic, structural and economic orientations. The aesthetic aspects refer to the perceptual awareness and oreintation of the viewer as well as the qualities of the topic subjects such as edges, surfaces, textures, patterns, shapes and color.

The structural aspects are those organizations of qualities and organizations of matter including the biotic world. Form, continuity, function and sequence are some examples.

The economic aspects are here defined as those which provide benefit or exact a cost from man, such as induced by difficulties with dissonance or ambiguity.

Throughout Ways It Is is a concern for man's ability and potential to sense, perceive and to communicate both with himself and others as well as the real world. The segments sometimes provide a change in orientation to aid the viewer realize new vision. Othertimes the focus is on an aspect of the nature or behavior of things in environments to better able the achievement of a deeper awareness of the universality of various relationships, behaviors and states of being.

WAYS IT IS

Working Program Outline

Segment

1. Explorations in Scale: Products and Processes

   Changes in scale reveal unexpected relationships of the familiar and unfamiliar.

2. Explorations in Shape, Color, Mass and Texture

   Changes in orientation make these new qualities to learn.

3. What Is There?

   Different processes separate out different aspects of the environment.

4. Module

   Exploration of the idea of fundamental building units or elements.

5. Structures

   Exploration of the building limitations of matter revealing possibilities not commonly realized.

6. Images in Motion

   Exploration of images of motion and moving images.

7. Reality Is a Changing Thing

   Presented realities change as the viewer learns that reality is change.

8. Confluence, Contact and Divergence

   What is the nature of coming together and going apart.

9. Movement

   The dynamics of movement and change as a commonplace 20th century condition.

10. Interpenetration

Forms and patterns change and sometimes become more than the sum of the parts and sometimes less.

11. Unity in Diversity: Diversity in Unity

Each quality contains and implies the other.

12. Cycles

The ups, downs and arounds of individual, social and bio-physical systems, subsystems and entities.

13. Opposed Forces

A dynamically visual consideration of forces seemingly in opposition to each other.

14. Communities, Nodes and Settlements

These phenomena are played with from psychological, sociological and bio-physical viewpoints.

15. Networks

The establishment, utilization and modification of nets.

16. Continuity

Explorations of change linkages as well as processes of metamorphosis transmutations.

17. Adaptation

The mechanism and poetry of "fitting," "belonging," modifying and evolving.

18. Harmony and Rhythm

An exploration of similarities and differences within and between systems using time, tone and field.

19. Edges and Interfaces

A delicate though scintillating view of how things end and touch.

20. Ambiguity

An approximation and true exactness non-existant in the psychological, sociological, anthropological and bio-physical worlds.

21. Selective Perception

Seeing what you look for or are taught to see. As there are psychological filters there are cultural and bio-phsycial filters.

22. Silent Language

Exploration of how man communicates non-verbally using time, space, movement, objects and signs.

23. Search for Order

Human beings create methods of ordering but crystals too "search" for order.

24. Sensual Delight/Discord

One creature's delight is another's discord. Is it true for objects and systems?

25. Form and Function

Function generates a form which affects the function. Functions to form; forms to function.

26. Feedback, Acceleration and Homeostasis

The utilization of control and breakdown processes by bio-physical entities and objects as well as communities. The continual alternation necessary even for maintenance.

3. BYWAYS

Radio

52 weeks, 25 minutes per program and for local station use.

This is an AM/FM radio series which uses the power of immediacy to effect environmental involvement. The format is one in which the listener is either personally involved or must provide, consciously or unconsciously, the sense of closure listeners seek to humorous or dramatic stories generated about current environmental concerns. The "story" might be a fiction or fact dramatization or a *live* story, such as on-the-spot, you-are-there format, or even a listener involving forum.

Byways is used to help inculcate increased will for improvement, the development of a workable environmental ethic and guidelines to responsible action.

Some examples of the forms *Byways* will take are:

Forum

Instant Debate

News

Street Surveys

Environmental Humor

Dramatic Reinactment of Environmental Story

History

Audio Journeys

Audio Experimental Treatments

Listener Participation

Experimental treatments could include such things as an audio examination of the ecology of sound. For instance, the aural relationships and sound sources within a particular zone might be explored. Sounds can be separated out from environmental noise to discover the constituents, continuity, cycles and periodicity. The listener knowing the structure of noise should be more attuned to the constituents and more able to participate in decisions about environmental noise. The presentations will be designed for listener discovery and one such as the above might be completely nonverbal.

4. PATHWAYS

Materials

Educational kits and packages for students and teachers.

Pathways are the materials, kits and packages which enable maximum educational impact to be derived from the broadcast component. The materials will promote high individual interest and a sense of purpose and will promote active positive and self-perpetuating personal involvement in personal and group efforts to enhance the quality of life for all.

Pathways will consist of kits and materials for:

1970	1971
Ages 6 - 7	Pre-School
Ages 10 - 11	Ages 8 - 9
Ages (High School)	Ages 12 - 13
Teacher Training	College Subject Areas

Development of materials in the first year will allow for broad coverage of school aged children and their teachers, and will help meet the pressing need for environmental education materials and ideas at all levels which also allow utilization of existing materials and methods.

Improvement of Pathways and the Development of Pathways for the groups and needs necessary to complete coverage of the age, grade and discipline range will be accomplished in the second year.

The materials for high school will encourage and provide for a number of possible discipline and interdiscipline needs, such as science, social studies, environmental education, arts, clubs and special activity youth groups.

The materials for teacher training will also encourage and suggest their use in many different teacher education course areas, especially environmental education, general methods, science methods, social studies.

The Pathways materials are to be available in package and kit form and are expected to include a variety of visual/aural, tactual primary sources, as well as secondary source materials. Some of the forms could be tape cassettes, activity/project cards, posters, photointerviews, slides, etc. (See Addenda I and II)

Such packages or kits could be created for as many defined groups or purposes as funds permit or time will allow.

The design of the broadcast components is using the world itself to teach both students and teachers, as the broadcast component is but an abstract representation of the world itself and its environments. The educational materials called Pathways deepens the quality of the personal and group environmental experience by providing an orientation to the broadcast component which leads the viewer into deeper personal exploration and interest. Such learning materials are essential if the learner is to go beyond the effect that a single closed lesson in a self-contained classroom would have. Students with their teachers and teachers-to-be and the teachers of teachers can use common educational elements taking from them what their age, stage and need prescribes, but each group also needs materials and messages designed for them and when possible, by them.

While a college or university might want to use Pathways in different courses, a slightly different orientation would be needed by each teacher of teachers. A collection of orientation possibilities for the various needs of teacher preparation will be published together. Each teacher of teachers will then be able to select an approach most suitable for their own specialty area and their own teaching styles. Teachers will be invited to fabricate their own approaches from all those suggested, their own personally useful and self-designed amalgamations. Pathways also make the broadcast segments useful for schools as an in-service training vehicle to be used by curriculum specialists and administrators.

Also, as funds become available, home education packages would be prepared for those non-professional teachers commonly called parents. The support materials might vary in design for one culture group or another and in some instances from one geographical area or biome to another. Many different support material collections, packages or kits could be made, all of which could help the generation of excellent and exciting educational experiences.

The creation of Pathways for special minority groups will be a continual operational development. Certainly Spanish editions will be available for trial use early in our program development but more detailed cultural variations must await the second year of development.

Program Development Procedures

The TV, radio and related materials will be developed according to the following plan:

1. Preliminary Development.
    a. Conceptualization, description and prototyping.
    b. Development by trial assessment within PBEC.
    c. Development by contract with outside and proven development teams and concerns.
2. Pilot Test.
3. Field Test.
4. Material production and distribution by contract with commercial companies.
5. Final release and revision.

Evaluation and redesign will be an integral part of the continuing development process. The procedures described here are shown in operational schematics in Figures 1 and 2 (pages 549 and 550). The schedule for the environmental education group activities is outlined in the Milestone Chart on page 552.

Preliminary Development

The staff will create and explore the effects of prototypes, utilizing external expertise and facilities as needed. Both educational materials and objectives and opportunities will be iteratively refined and implemented. Prototype development will include both the program materials and the educational support materials.

Pilot Testing

Prototypes will be tested with selected small samples of the larger constituency who will eventually use the materials. The sample groups could be a few individuals or just a few groups of individuals. Trial subjective and objective evaluations will be elicited from appropriate professionals.

Field Testing

This will represent the largest development phase prior to final release of the materials. Testing will take place in at least one large political region, such as a state or one of the U.S. Office of Education regions, and at least three separate broadcasting regions, each in a different part of the United States.

Production and Distribution

The required materials will be produced and distributed by qualified commercial companies.

Final Release and Post-Development Revision

During this phase, materials will be distributed for general use. Further revision will occur continually on the basis of feedback and will be reflected in each succeeding edition of the materials.

Development Time Sequence

Following is the time sequence of developing the segments: TV - Ways It Is and Ways to Go; Radio - Byways; and Materials - Pathways. The time line must be understood on the basis of simultaneous development of a variety of materials and segments in a variety of states of development.

Development Overview

Prototyping as mentioned in the body of this proposal refers to the outcome of a part of the design process. Development refers more to the refinement, final material design selection, schedule definition, trial testing, production cost analysis, and gearing up for final production.

In the preliminary development the education group will be working with materials in a workshop-like atmosphere, with development and production deadlines to meet. They will be creating prototype materials using graphic and motion picture techniques as well as those developed as a result of the total curriculum development efforts in this country and those of other countries, where relevant. (See Exhibits 39 c, d and e.)

This time sequence also serves as an organizational gauge to aid evaluation and decision-making. Specific segment details will evolve as the design process continues.

Contractors

Development of the educational materials and broadcast segments will take place using many sources of assistance and expertise. Independent consultants would be used as well as independent companies. Each source of assistance could then be used to its point of maximum contribution or innovation. Overall continuity of material substance and style as well as coordination of many different items at one time will require continual and effective feedback and feed forward communication with all contractors. Control of the total operation is and must be PBEC's.

"A cable is stronger than its weakest strand." Utilization of a variety of organizations and their expertise creates a variety of strands. Each one is a bond contractors establish with PBEC and the PBEC education group. These strands comprise a cable of strength in which new strands can be added or broken ones removed and, importantly, PBEC does not depend on any one strand.

However, prototyping of the educational impact materials will take place in PBEC and will permit direct and rapid resolution of ideas directed towards the overall concerns of the education program. Evaluation at this stage of development will give a rapid indication of the directions further development will explore well before preliminary contracts are let.

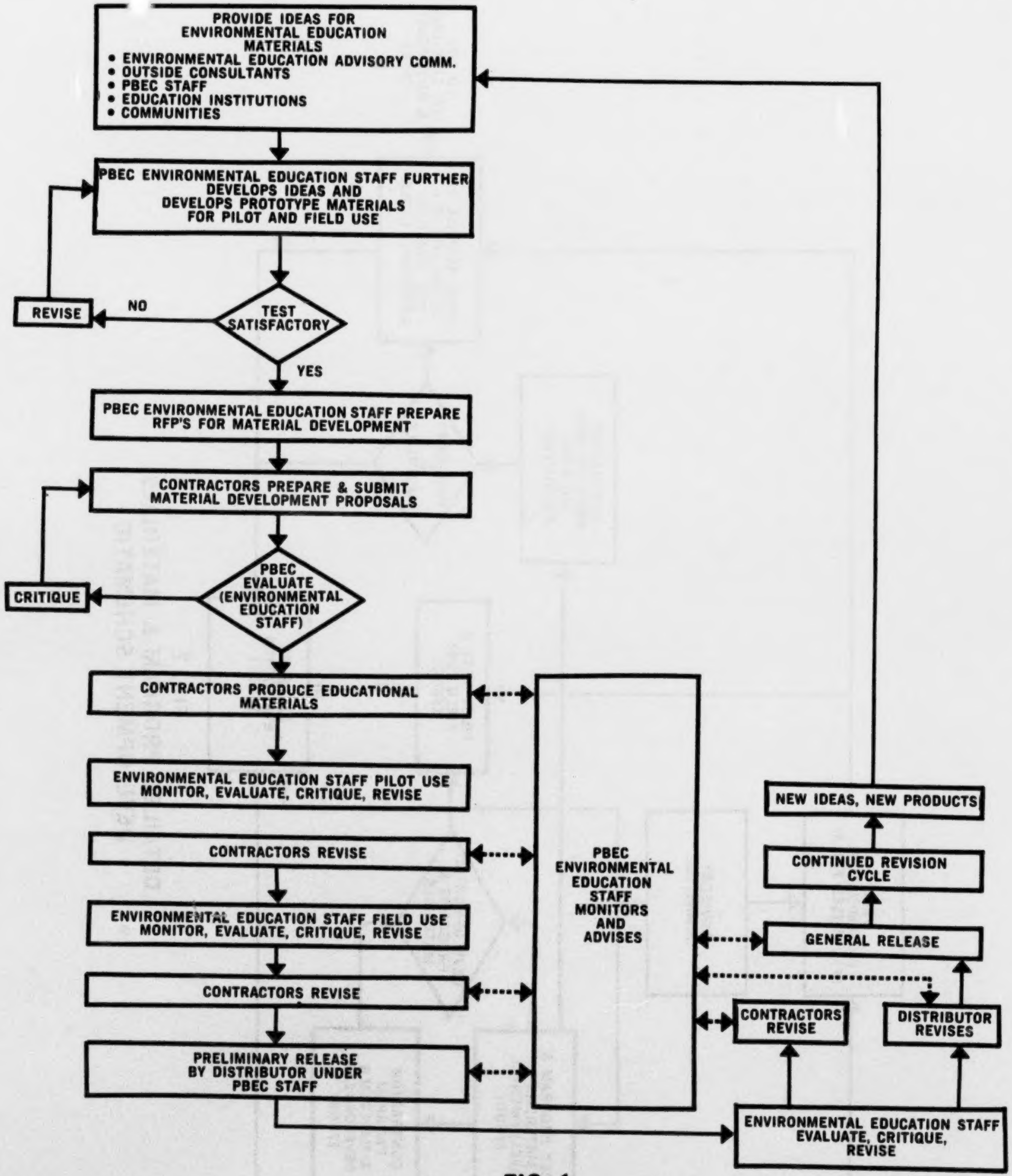
PROVIDE IDEAS FOR ENVIRONMENTAL EDUCATION MATERIALS
• ENVIRONMENTAL EDUCATION ADVISORY COMM.
• OUTSIDE CONSULTANTS
• PBEC STAFF
• EDUCATION INSTITUTIONS
• COMMUNITIES
PBEC ENVIRONMENTAL EDUCATION STAFF FURTHER DEVELOPS IDEAS AND DEVELOPS PROTOTYPE MATERIALS FOR PILOT AND FIELD USE
REVISE
NO
TEST SATISFACTORY
YES
PBEC ENVIRONMENTAL EDUCATION STAFF PREPARE RFP'S FOR MATERIAL DEVELOPMENT
CONTRACTORS PREPARE & SUBMIT MATERIAL DEVELOPMENT PROPOSALS
CRITIQUE
PBEC EVALUATE (ENVIRONMENTAL EDUCATION STAFF)
CONTRACTORS PRODUCE EDUCATIONAL MATERIALS
ENVIRONMENTAL EDUCATION STAFF PILOT USE MONITOR, EVALUATE, CRITIQUE, REVISE
CONTRACTORS REVISE
ENVIRONMENTAL EDUCATION STAFF FIELD USE MONITOR, EVALUATE, CRITIQUE, REVISE
CONTRACTORS REVISE
PRELIMINARY RELEASE BY DISTRIBUTOR UNDER PBEC STAFF
PBEC ENVIRONMENTAL EDUCATION STAFF MONITORS AND ADVISES
NEW IDEAS, NEW PRODUCTS
CONTINUED REVISION CYCLE
GENERAL RELEASE
CONTRACTORS REVISE
DISTRIBUTOR REVISES
ENVIRONMENTAL EDUCATION STAFF EVALUATE, CRITIQUE, REVISE

FIG. 1

OPERATIONS CHART:
PBEC ENVIRONMENTAL EDUCATION GROUP

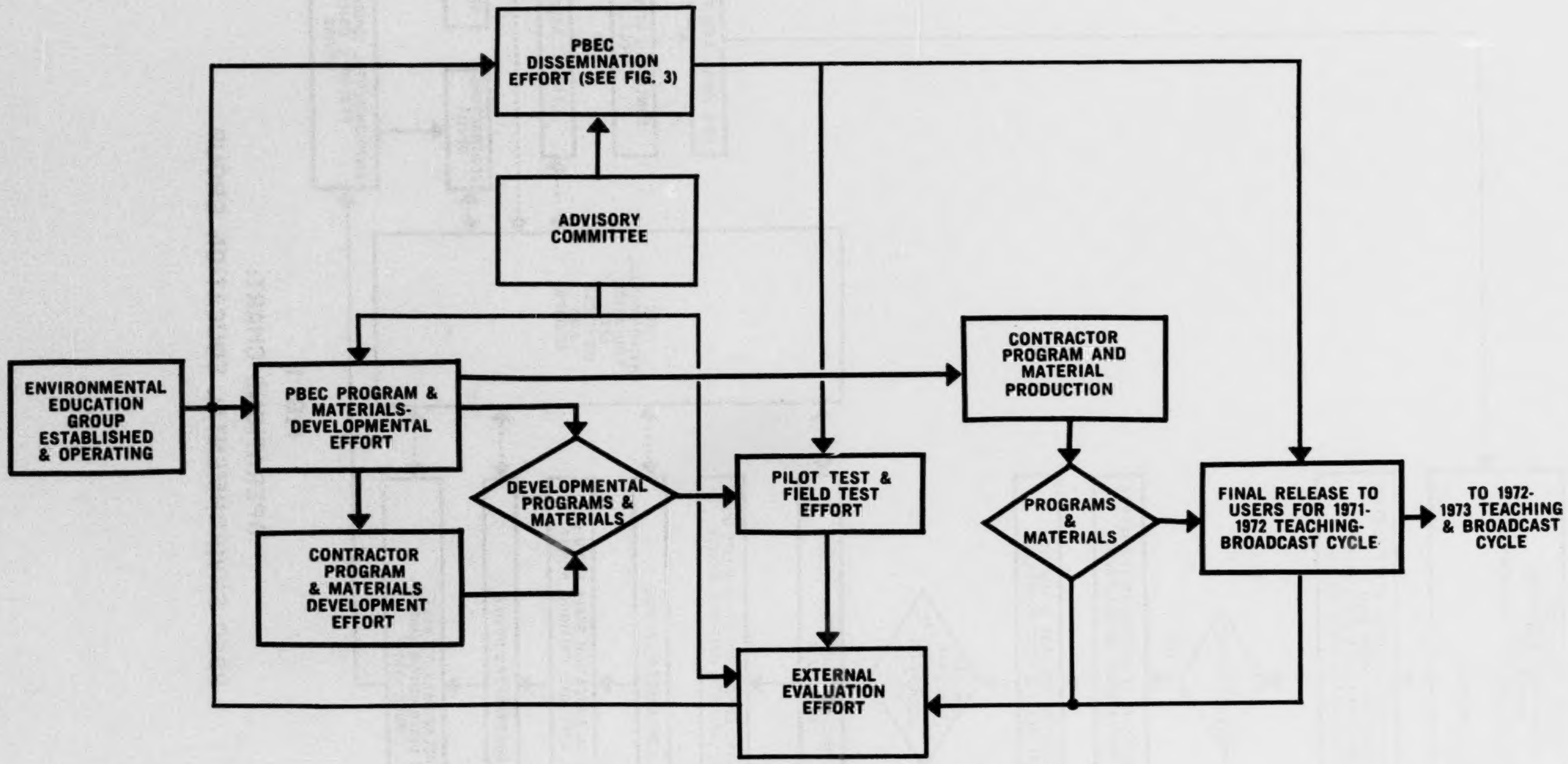
ENVIRONMENTAL EDUCATION GROUP ESTABLISHED & OPERATING
PBEC DISSEMINATION EFFORT (SEE FIG. 3)
ADVISORY COMMITTEE
PBEC PROGRAM & MATERIALS-DEVELOPMENTAL EFFORT
CONTRACTOR PROGRAM & MATERIALS DEVELOPMENT EFFORT
DEVELOPMENTAL PROGRAMS & MATERIALS
PILOT TEST & FIELD TEST EFFORT
EXTERNAL EVALUATION EFFORT
CONTRACTOR PROGRAM AND MATERIAL PRODUCTION
PROGRAMS & MATERIALS
FINAL RELEASE TO USERS FOR 1971-1972 TEACHING-BROADCAST CYCLE
TO 1972-1973 TEACHING & BROADCAST CYCLE

FIG. 2
DETAILED PROGRAM & MATERIALS
DEVELOPMENT SCHEMATIC

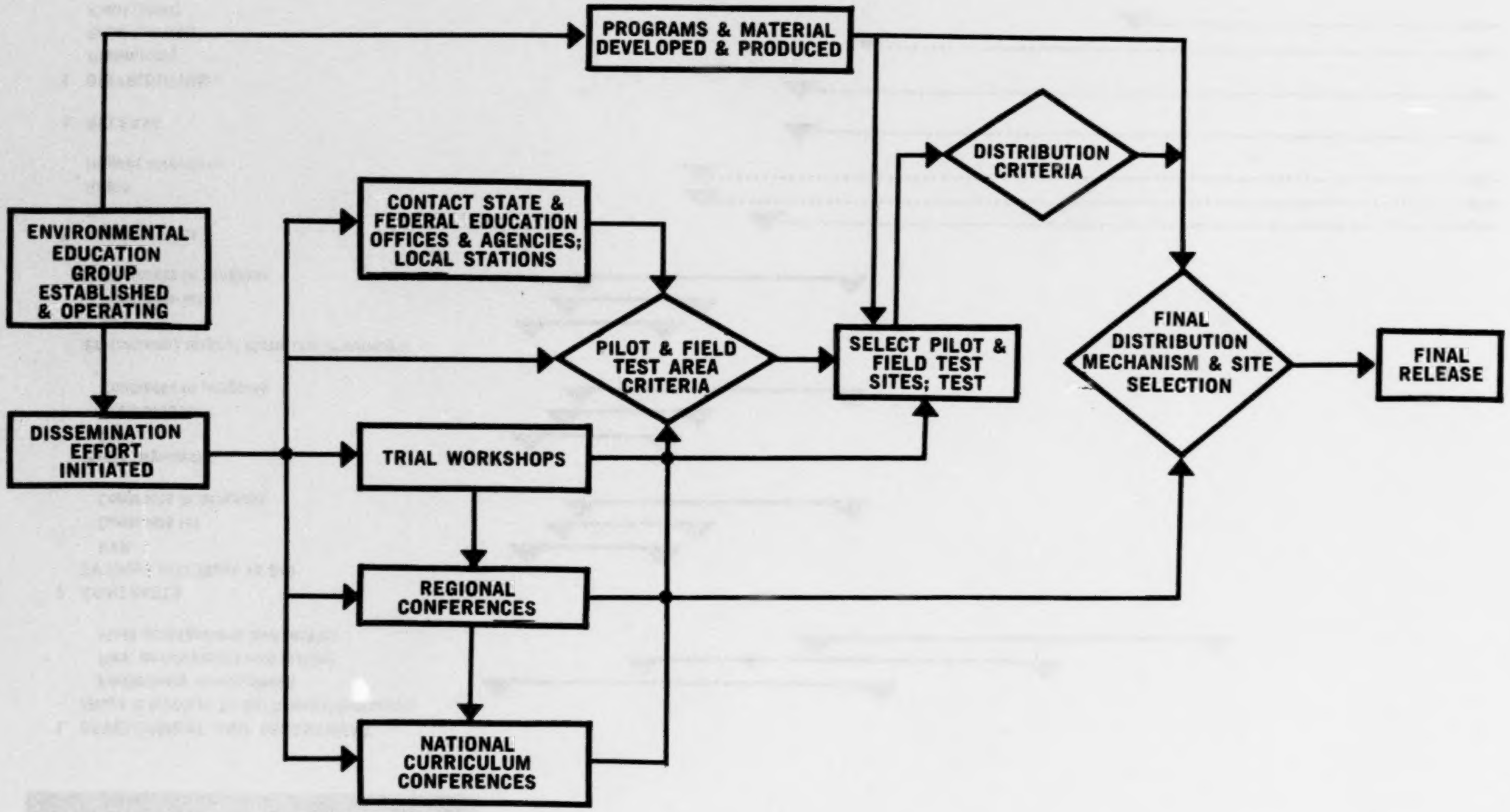
ENVIRONMENTAL EDUCATION GROUP ESTABLISHED & OPERATING
DISSEMINATION EFFORT INITIATED
PROGRAMS & MATERIAL DEVELOPED & PRODUCED
CONTACT STATE & FEDERAL EDUCATION OFFICES & AGENCIES; LOCAL STATIONS
TRIAL WORKSHOPS
REGIONAL CONFERENCES
NATIONAL CURRICULUM CONFERENCES
PILOT & FIELD TEST AREA CRITERIA
SELECT PILOT & FIELD TEST SITES; TEST
DISTRIBUTION CRITERIA
FINAL DISTRIBUTION MECHANISM & SITE SELECTION
FINAL RELEASE

FIG. 3
DETAILED PROGRAM & MATERIALS
DISSEMINATION SCHEMATIC

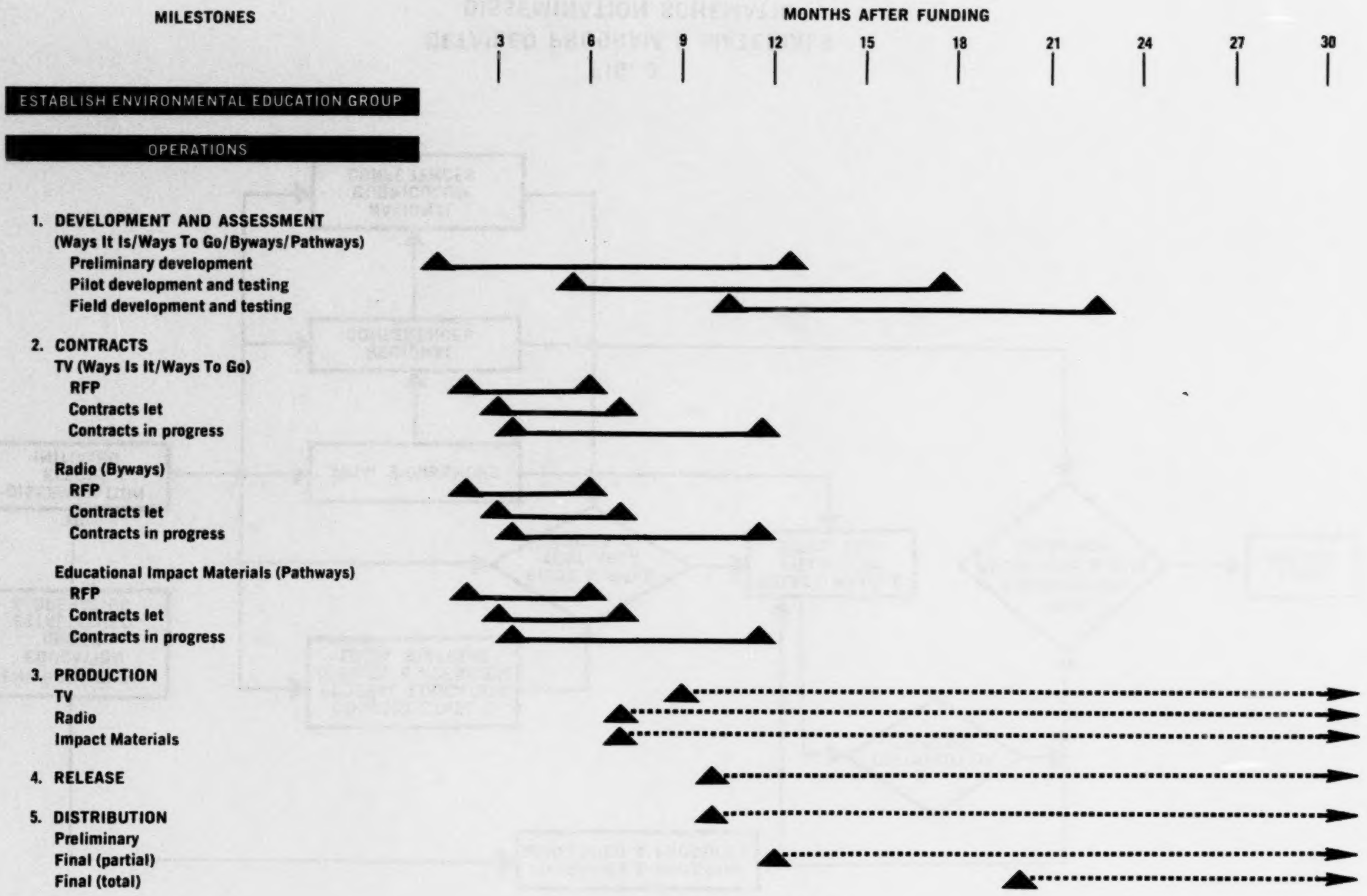

CHART 1
ENVIRONMENTAL EDUCATION FOR EDUCATIONAL INSTITUTIONS

DISSEMINATION

Introduction

The major concerns of dissemination will be to inform both general and the specific audiences of the availability of programs and materials from PBEC and to disseminate the materials and programs themselves. Essentially these will be the 200 local TV and 96 radio broadcasting stations, as well as schools, teachers, parents and community organizations. It will also be necessary to provide information about programs in process and the results of other PBEC efforts. Among the methods being planned are: magazine inserts, articles and references, workshops, mailings and local position papers. The dissemination effort is schematically shown in Figure 3, page 551.

Local Stations and Schools

Contacts and negotiation with State Education Officers, regional superintendents, Directors of the Office of Education Regions and Regional Labs, as well as directly with school systems when possible, and with stations, will be accomplished through personal visits, program material demonstrations and by a newsletter planned as a periodic progress report of the PBEC effort and associated local efforts. In addition, once commitments are made, the PBEC staff will be available to conduct workshops, introduce materials and consult on their use.

Workshops

1. Five trial workshops, each to be held in a different selected setting for local educational leaders are being planned. One purpose of the workshops is to better prepare these leaders to conduct local workshops with persons concerned with the use of the environmental materials. Another purpose is to gain formative information and feedback to aid program development. One by-product of the trial workshops will be the creation of workshops guidelines for the broader application of environmental education workshops beyond those described in this program.

2. Ten regional conference workshops will be held, following a general information mailing to invited educational decision-makers. The mailing will explain the program,

its multi-use design and the associated PBEC resources available to them through and with the use of PBEC's environmental education programs. Each conference will be a workshops so to best help individual promotion and sponsorship of the program. The approach and content necessary to facilitate and to encourage development of adaptations for local needs and special modification for multiple purposes will be developed by this means.

The conference/workshop format itself will be of multimedia style, high information and activity impact with emphasis on kinesthetic, tactual activities eliciting intellectual commitment and exploration as well as positive emotional involvement.

3. Two conferences will be held with national curriculum leaders. These conferences will gather and integrate their ideas and reactions into future planning and readjustment and will also inform national opinion makers of the activities and results of PBEC's educational efforts.

All environmental education dissemination efforts will be coordinated with the Public Broadcasting Environment Center Communications Services.

Distribution of films, tapes and kits and other related materials will be at cost.

EVALUATION

Introduction

"Stating the special objectives of the course as best one can will enable others to judge its effectiveness on these criteria. Including both special indicators and those of interest to various groups will enable others to form a judgement of the course on the basis of their own priorities. Studies of sub-groups of students will enable those working with similar groups to judge the adequacy of the course for their students. Basic educational research might reveal better instructional methods and media. Including a random sample would allow generalizing the results to specified populations. Explicitness, objectivity, and critical judgement in formative evaluation are likely to improve the course. And finally, an objective reporting of the results and possible sources of bias will enable both other evaluators and potential consumers to judge the effectiveness of the evaluations itself."[29]

The magnitude and scope of the programs being proposed here demand a wide variety of evaluation techniques, including subjective and objective approaches and cognitive and affective assessments.[30] Formative evaluation is essential and will benefit from both direct and indirect techniques.

The materials themselves will often contain evaluation instruments which users will feed back to PBEC. Field evaluators will be used and secondary sources (e.g., parents) will be surveyed for opinions, understanding and other effects of educational materials.

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29. Walberg, H., "Curriculum Evaluation: Problems and Guidelines," The Record, Vol. 71, No. 4, May, 1970.

30. For a detailed discussion of the cognitive and affective objectives to be evaluated see Appendix V. Appendix VI A.2 describes in detail the external evaluation program including a specific discussion of educational evaluation in paragraph 4.7.

The evaluation measures themselves will be determined, and refined, in conjuction with the development of each specific educational material package, program or segment. The evaluation will be of three major categories:

Developmental Evaluation

The initial prototyping and development of the materials will be evaluated. Specific questions that arise will be answered by setting up short evaluative situations such as a small group viewing of a particular film segment in competition with other stimuli to evaluate its attention drawing power.[31,32]

Pilot Evaluation

Pilot testing begins as TV and radio segments and programs and materials are available for pilot usage. This testing will closely approximate a measurement of the objectives to which the segment or material was designed. It will be a trial of the evaluation methods as well.

Members of the PBEC staff will visit the locations of pilot testing to learn first-hand of the problems and opportunities. It is anticipated that the sites will span the nation. Evaluations at this stage will give information about the effectiveness of materials and of the differences in use of various locations.[33]

Field Testing

Field testing will be done in one major political region, one geographical region and three broadcasting regions. The field testing situations will be representative of the

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[31] Using techniques such as those employed by CTW, "Sesame Street."

[32] For additional details see paragraph 4.7.1 and 4.7.2 of Appendix VI A.2 "External Evaluation."

[33] Further discussion of pilot evaluation can be found in paragraph 4.7.1 and 4.7.2 of Appendix VI A.2, "External Evaluation."

educational diversity of the nation. Information is needed for two areas of evaluation: (1) Internal formative evaluation for those involved with the creation and production of the programs and materials; (2) External evaluation which helps the PBEC environmental education effort to be accountable. Another benefit to the PBEC environmental education will be the formative feedback of outside evaluation of the various processes and products. Such information will also help future program design.

The PBEC Research Team will aid in coordination and implementation of the evaluation efforts.[34]

Needed Development Information

Following is a basic list of the information we will be seeking whether the student is a child or an adult:

1. a. Starting-points tried out, and degrees of student's responses.
   b. Degrees of interest in various topics.
   c. Degrees of interests in different types of questions.

2. Contributions to sustainment of interest or pursuit made by:

   Discussion
   Watching, searching for, exploring
   Experimenting
   Comparing, sorting, classifying
   Counting, measuring, estimating
   Recording, writing down books, etc.
   Drawing and painting

---

[34] For detailed discussion of the field evaluation see paragraph 4.7.1 of Appendix VI A.2, "External Evaluation." For experimental operational details and a discussion of experimental design, see paragraphs 4.7.2 and 4.7.3 of VI A.2. An integrated view of target audience characterization, program objectives and external evaluation, as they relate to PBEC environmental education can be gained by a review of Appendices IV, V and VI A.2.

Library work and reading
Use of student's "environment" books
Lecturettes
Displays, exhibitions, etc.
Supplementary use of films, radio and TV

3. The part played by the teacher

   a. Ways of help:

      Typical pointers or hints
      Questions
      Suggestions for action
      Supplementary information, talks, etc. going beyond what is directly ascertainable
      Fresh stimuli

   b. Extent or degree of help:

      Experiments in varying this
      Experiments such as letting groups of students be led by more advanced ones with the teacher only stepping in where specially required.

4. Points that might be worth specially looking out for:

   a. Building up record of students' own questions, classified according to topic and type
   b. Recording the influence or leadership of specially forceful students
   c. Noting marked differences of response or interest between males and females
   d. Considering the relative productiveness of work in large groups--in smaller groups--individual
   e. Recording cases where some particular contribution seemed to makr a turning-point or to make an important difference.

5. Overall review and/or comments:

   a. Survey of the total ground covered (perhaps with a table of the enquiries carried out, under the headings of topics or fields concerned; or nature of question or problem looked into)

b. Any specially successful enquiries--their actual outcomes--the factors that seemed to bring about success or to contribute specially to this

c. Unsuccessful or disappointing enquiries, and any apparent causes or main contributory factors.

This type of information[*] will be used summatively and formatively.

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[*] Based on Nathan Isaacs' Children Finding Out, National Froebel Foundation, 1966.

STAFF AND FACILITIES

Staff for Creation and Development

The educational development team has eight members and includes a director, two senior development staff members, two development staff members and three support staff members. The team will be developed so that each member can provide his own unique contribution which in turn will compliment the inputs of other team members. The team as a whole moves toward the same goals and operates within a framework common to all members of the team.

The framework within which the team works is designed to encourage creativity, accountability and productivity and while maintaining efforts, develops a high level of positive intergroup relations and levels of responsibility.

Facilities within an Organization

The facilities within which the team work, will be oriented about a workroom containing the necessary tools and materials to allow rapid physical prototyping of ideas. The design of the physical facility must be such to promote active sharing and mutual working arrangements while still permitting separate efforts without the necessity of programming special arrangements or breaking a continuity of process or product, individual or group.

The development of prototype educational materials will require a variety of materials and the utilization of a variety of processes. Location in an urban center such as Washington will reduce the time needed for research and development work.

The resources of Washington, D.C., with its great number of national and international institutions will be of great value to the continuing program development efforts.

Concentrations of a wide variety of people and periodic involvements of many more in the Washington, D.C. area allow consultation with individuals and groups who might otherwise be unavailable.

The full range of PBEC's facilities will be of great value to this environmental education program development. These include a reference library, film library, meeting rooms and film projection room, as well as a staff expertise across a wide range of specialties.

PURPOSES, OBJECTIVES AND TASKS OF ORIGINAL PBEC PLANNING GRANT*

"The public broadcasting community, along with many other institutions, has long been concerned with the problems of the environment and desirous of attacking them in a large-scale, systematic way. With others, we have recognized the environmental imperative and done what we could, as communicators, to make it known. The creation of the Center now gives a focus, unity and common direction to these efforts.

"For the first time, a national broadcast system will devote full-time talent and attention to a public education campaign aimed at a universal problem.

"That is the huge task that the Public Broadcasting Environment Center has taken upon itself. The Center will seek to join the communications power of the public broadcasting system (191 TV and 425 radio stations strong) with the best expert thinking on the problem.

"Six months ago, the Board of the Educational Television Stations, representing all of the public television's stations throughout the country, anticipated the need and set the environment as its number one programming topic priority. Since then these leaders of public broadcasting have pressed for a method to attack this massive problem in a massive way. The action today is therefore very largely the culmination of their concern and dedication."[35]

Purposes

Among those purposes PBEC was directed to meet by the funding of its planning proposal were:

1. Inform and educate a wide variety of target populations on the crucial issues involved.
2. Change perception and awareness and induce changes in behavior impacting upon the environment.

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* OE Grant to CPB, May 1, 1970.

35. Excerpts from John Macy's News Conference, 25 May 1970.

3. Develop plans for programs brought to specific school systems and teacher training populations via public broadcasting media, school systems themselves and the facilities of other institutions.

4. Conduct and evaluate the results of surveys of concepts and approaches of what has and is being done in environmental education.

Objectives

All objectives are distinctly pertinent to the environmental education needs and opportunities of educational institutions from elementary schools to colleges for teacher preparation. To help meet these needs, as well as others, the following objectives were defined:

1. To develop a comprehensive plan of action through which public broadcasting can take the further steps necessary to achieve the environmental educational aims below:
   a. Develop an increased national environmental awareness through the creative use of public broadcasting programming.
   b. Develop a fuller understanding of the natural and man-made forces affecting our natural resources.
   c. Develop the first stages in the awareness of the need for a national environmental ethic.
   d. Gain maximum return from the unique qualities of broadcasting for reaching a mass audience and thereby closing the gap between rich schools and poor, between suburban schools and their counterparts in the urban slums or in the rural poverty areas.
   e. Establish a dialogue between the nations 51 million students in public and private elementary and secondary schools and their parents.

2. To establish a viable institution to serve the needs of identified populations in carrying out plans and programs designed to achieve the objectives outlined above.

Tasks

Furthermore, certain tasks and restraints were also specified:

1. Survey what has been done, what is being done and what is planned with respect to informational and educational programs as they relate to environmental problems including classroom programs at all levels and teacher training, in both public and private sectors.

2. Assess the relationship of such programs to intended target populations and specified behavioral outcomes and goals.

3. Formulate Public Broadcasting Environment Center programs in relation to such findings in order to assist decision making as to:

    a. best concepts and approaches.

    b. avoid duplicative or waste efforts.

    c. harmonize programs and to optimize allocations of resources to achieve mutually shared purposes.

4. Develop the necessary teaching aids which might take the form of films, written materials and other audio-visual materials as appropriate. Scripts, films, manuals, charts and other visual aid material would be used in different combinations for specific programs and target populations.

5. Testing proposed program results in the anticipated outcomes will be undertaken.

    a. Plans developed to provide for such testing and for adjustments in programs to meet the behavioral outcomes as defined.

b. Redefinition of the behavioral outcomes will occur as indicated by pilot test and measurement results.

6. Interdisciplinary teams of specialists are to be used in developing the course materials including anticipated behavioral outcomes and their measurement.

7. Planning specialists, psychologists, systems analysts, curriculum specialists as well as writers and film specialists and others are to be used for both the planning and programming stage.

8. The current body of knowledge of supporting social change and behavioral change must be brought to focus upon environmental education.

On May 25, 1970, the U.S. Commissioner of Education stated:

"Environmental education is a means of helping each student and citizen to develop an attitude of personal responsibility on which our survival depends. This new educational approach will supply the knowledge, skill and motivation needed to contribute rationally to the decision-making process on issues involving the quality of the environment and life-styles."

and still later,

"...educational public broadcasting can serve as a mechanism for a growing refinement and distillation of the pleasures that truly educated men and women could extract from a really livable environment. E.B. White once observed that he was pessimistic about the human race because it was too ingenious for its own good. Our approach to nature is to beat it into submission. We would stand a better change of survival, he thought, if we accommodated ourselves to this planet and viewed it appreciatively instead of skeptically and dictatorially.

"Hopefully, this undertaking we are initiating here today between education and public broadcasting will help our society begin a new quest -- 'a quest not for a greater quantity of what we have, but for a new quality of life in America.' "

DEVELOPMENT METHODS USED TO HELP MEET PBEC PLANNING GRANT OBJECTIVES

The PBEC education group pursued the objectives outlined using styles which allowed information gained from sources such as surveys and reading to have a formative and yet not a restrictive influence. Commonly held answers did not exist for environmental education, its problems and its opportunities. Therefore, search and survey tasks were necessary.

As information was gained and was used to help develop recommendations for further endeavors, the proposed solutions had to be developed with the realization that tomorrow's problems could be contained in today's solutions.[36]

Many in speaking of education share the following viewpoint:

"It has to foster the social goals of living together, and working together, for the common good. It has to prepare our young people to play a dynamic and constructive part in the development of a society in which all members share fairly in the good or bad fortune of the group, and in which progress is measured in terms of human well-being, not prestige buildings, cars, or other such things, whether privately or publicly owned. Our education must therefore inculcate a sense of commitment to the total community, and help the pupils to accept the values appropriate to our kind of future, not those appropriate to our colonial past."[37]

The environmental opportunity we have now is also our environmental danger.

"Historical circumstances have combined to make America the scene of some of the sharpest contrasts in environmental attitudes and some of the bitterest conflicts over environmental values. Paradoxically, it may be that, in America,

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36. Foster, David, Lecture at University of Oregon, Eugene, Oregon, April, 1970.

37. Nyerere, Julius K., Education for Self-Reliance, The 8 x 8 Press, 1969.

where nature has perhaps been most ruthlessly exploited and where an environmental ethic has perhaps been least comprehensible to the mass of the people, a concept of the environment might now develop that will unite scientific fact, social outlook and ethical value. In exploring the basis of an environmental ethic, the American may therefore be taken as representative of modern industrialized man everywhere; his successes and his failures in the management of his environment stand out more sharply than those of other peoples."[38]

For the reasons above, a crisis-centered approach for remedial or terminal problem solutions is not adequate. Robert Theobald also makes this point in An Alternative Future for America with emphasis on the need to encourage all students in "meaningful participation in life;" to create useful and stimulating "educational forms to life participation."[39]

Perhaps one of the clearest statements on this subject was by Richard M. Nixon:

"As we look ahead to the end of this new decade of heightened environmental awareness, therefore, we should set ourselves a higher goal than merely remedying the damage wrought in decades past. We should strive for an environment that not only sustains life but enriches life, harmonizing the works of man and nature for the greater good of all."[40]

Whatever efforts developed or recommendations followed, it was decided they had to be positive and concerned with ever continuing improvement.

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38. Caldwell, Lynton K., Environment, Natural History Press, 1970.

39. Theobald, Robert, An Alternative Future for America, Swallow Press, 1968.

40. Council on Environmental Quality, Environmental Quality, First Annual Report, U.S. Government Printing Office, 1970.

An attempt was made to develop a method of working which allowed for continual developmental redirection as a result of redefinition of opportunities as information and understanding developed. Working papers, concepts and programs were modified again and again. An attitude of continual reformation was and will be essential.

Most of the conclusions were based on objective, cognitive facts. Other conclusions such as a working definition for environment and even environmental education were the result of gradual growth of understanding of current thought and direction. The method of development used is similar to that used by most designers utilizing feedback from their products and processes as they take form. Such formative information continually helps define the next steps leading to a final product and to other products. The overall model of problem solving used to reach the objectives was as follows:

1. Conceptualization and description of the task, involves outlining, discussing and defining terms.

2. Assembling information or other resources as necessary and as rapidly as possible.

3. Classifying information.

4. Giving form to ideas as concepts are derived.

5. Developing conclusions and recommendations.

Following are discussions of the particular information areas explored to reach the varying objectives:

1. Surveys: Attempting to minimize waste of effort and resources, existing surveys were utilized whenever possible and developing resources in the PBEC library and film screening program were fully utilized as were outside public and private sources. Surveys for special purposes were completed under contract to meet the objectives of our proposal. It cannot be authoritatively stated that all information was gathered; however, the accompanying lists indicate the scope of materials and surveys that were utilized.

a. PBEC Environmental Education Surveys: These surveys showed that environmental education, now a major national concern, involves considering the interrelationships of human beings with each other and with nature and technology. Most important to environmental education are some of the trends of "open education" which are included. In this approach, the student discovers with the teacher's help that it is essential to both gain background information for alternative choices of action and to set his own goals. "Field work" with direct involvement in the ambient world by both the teacher and the student is crucial. Broad interdisciplinary approaches are essential.

These surveys showed that there are few programs actually realizing these ideals. Those that do are exciting and effective. Important, interesting trends and examples are evident all over the country.

PBEC surveys in the areas of primary, secondary and higher education detail environmental education in science, technology, the arts, architecture and the humanities, social sciences and international education.

It was found that almost every college and university is interested in the environment. Virtually all such programs claim to be interdisciplinary in intent, if not in actuality. The range of disciplines which are claimed to be included varies. Some environmental education centers are still chiefly science oriented. Many do however now include social science. A growing number even include some behavioral scientists. A few programs cover the full range, including humanities, although those that started with a design or art base sometimes appear to have less close ties with science. A few projects involve international dimensions as well. Some colleges are using environment studies as a vehicle for general education and institutional reform. In these instances, student initiative is much encouraged. There are a growing number of new colleges which have adopted the environment as their central theme(s).

Secondary and upper elementary programs also show growing evidence of open and multi-disciplinary approaches. However lower elementary environmental education is relatively undone. Internationally, particularly in Great Britain, environmental education seems advanced, rich and flourishing, especially at primary levels. Other countries' programs still tend to seem to emphasize either science or out-door education. Teacher training, it was found, parallels curriculum development in most parameters and teaching levels.

The following PBEC surveys and reports were completed:

Environmental Resources, The Environment, Environmental Needs and Broadcasting: A Telephone Survey, PBEC, November, 1970. A telephone survey of some of the most articulate respondents, which covered a wide spectrum of the public from students and teachers to businessmen and farmers.

Henderson, Martha, Education Introduction, November, 1970. An introductory overview of environmental education trends, a PBEC staff paper.

Henderson, Martha, Environmental Education: Social Studies and Approaches. A paper for the ERIC Clearinghouse for Social Studies Education, Review Series No. 1, ERIC document No. ED042-06, 43 pages, October, 1970. This paper is the best available summary of social studies materials, groups and directions. The implications and common ground with environmental education is very important.

Henderson, Martha, Resources in Higher Education, October, 1970. A survey of major educational trend-setting activities and groups committed or oriented to higher education, a PBEC staff paper.

Henderson, Martha, Resources for Science and Art Education, October, 1970. A summary survey of environmental and educationally significant efforts in art and science curriculum development for pre-schoolers to college students.

Roth, Charles, Environmental Education in 1970. A summary report on the State of the Art (Pre-school to College), October, 1970.

Weissberg, Gloria, The Need for Educational Programs, November, 1970. A summary survey of programs that promote environmental awareness of "the integrity of the universe and the man-made environment."

b. Other Surveys and Reports Utilized:

AIA - COPE, this group has created an imaginative source book of references treating most aspects of environmental education though it is rather heavy on design approach.

Ames, Edward A., Schools and the Environment, Ford Foundation, 1969; an overview of environmental education and the environmental education projects funded by the Ford Foundation.

Council on Environmental Quality, Environmental Quality, First Annual Report, U.S. Government Printing Office, 1970. This report contains an excellent chapter and overview of what exists in environmental education and has recommendations for the further direction of environmental education.

Educational Resources Information Center - The ERIC Clearinghouse centers assemble materials on research and educational projects in specific areas. These are then available in microfiche or hard copy through the ERIC Document Reproduction Service, the National Cash Register Company, 4936 Fairmont Avenue, Bethesda, Md.

Environmental Policy Division, Legislative Reference Service, Library of Congress, Environmental Science Centers and Institutions of Higher Education. A survey prepared for the Subcommittee on Science and Astronautics, U.S. House of Representatives, 91st Congress, dated 15 December 1969. This policy division sent out questionnaires

1300 institutions, got replies from 500 and did a qualitative analysis of about 121 centers.

Hafner, E., et al., Environmental Education 1970. Scientists' Institute for Public Information, 1970. This workbook includes position papers, a survey of student environmental wants, new approaches to environmental education, curriculum, suggested environmental reading and new courses and academic programs in environmental science.

International Bureau of Education, The Study of Environment in School, 31st Session of the International Conference on Public Education, 1968. A research report of comparative education using information supplied from Afghanistan, Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Burma, Burundi, Cambodia, Cameroon, Canada, Central African Republic, Chad, Congo (Republic of), Congo (Democratic Republic of), Cuba, Cyprus, Czechoslovakia, Dahomey, Denmark, Ecuador, El Salvador, Ethiopia, Finland, France, Gabon, Germany (Federal Republic of), Ghana, Greece, Guatamala, Guinea, Honduras, Hungary, India, Iran, Iraq, Ireland, Israel, Ivory Coast, Japan, Jordan, Korea (Republic of), Kuwait, Laos, Lebanon, Lesotho, Luxembourg, Madascar, Malawi, Malaysia, Malta, Mauritius, Mexico, Monaco, New Zealand, Norway, Panama, Philippines, Poland, Rumania, Rwanda, Sierra Leone, Singapore, Somali, Spain, Sudan, Sweden, Switzerland, Syria Arab Republic, Tunisia, Turkey, U.S.S.R., United Arab Republic, United Kingdon, United States, Upper Volta, Viet Nam (Republic of), and Yugoslavia.

National Goals Research Staff, Toward Balanced Growth: Quantity with Quality, U.S. Government Printing Office, 1970. A report with a good statement on educational needs and on environmental dangers.

National Park Service, Environmental Education in the Public Schools: A Pilot Survey, National Park Service, Department of the Interior, Washington, D.C. This is a preliminary survey of environmental education programs throughout the country.

National Science Teachers Association, Programs in Environmental Education, 1970, NSTA, 1601 16th Street, N.W., Washington, D.C. A brief overview of a few science-based programs.

NEA Research Division, "A Survey of School Environmental Programs," published in *Today's Education*, December, 1970. This is a general survey of public school environmental education.

OSTI - "Urban Universities: Rhetoric, Reality and Conflict," U.S. Government Printing Office, 1970. A discussion relevant to problems of universities and the environment.

Projects to Advance Creativity in Education (PACE) - *PACE Environmental Education Projects*, Title III, Supplementary and Secondary Education Act of 1965. Description of the projects funded under Title III are included in bibliographies issued by the Office of Education under titles such as "PACE Outdoor Education Projects," and "PACE Marine and Oceanography Projects," and by the Government Printing Office under the title, "Pacesetters in Innovation." Available through the U.S. Government Printing Office.

Select Sub-committee on Education, *Environmental Quality Education Act*, (Hearings for the Committee on Education and Labor, House of Representatives), U.S. Government Printing Office, 1970. This document includes the statements and prepared statements of approximately 80 concerned and informed leaders of opinion, action and learning. Additional information is included in the form of appendices.

U.S. Office of Education, "Report Summary of Environmental Education Programs in the United States," August, 1970. A comprehensive 1300 page working paper of the program descriptions submitted for inclusion by the various states.

2. Environmental Problems and Opportunities:

"The Congress of the United States finds that the deterioration of the quality of the Nation's environment and of its ecological balance poses a serious threat to the strength and vitality of the people of the Nation and is in part due to poor understanding of the Nation's environment and of the need for ecological balance; that presently there do not exist adequate resources for educating and informing citizens in these areas, and that concerted efforts in educating citizens about environmental quality and ecological balance are therefore necessary."[41]

In addition to its own staff and the multitudinous contacts of day to day sharing and researching, PBEC had the guidance and assistance of deeply involved and professionally outstanding consultants such as John Milton, ecologist, writer and staff member of the Conservation Foundation; James Aldrich, former vice president of Educational Services Incorporated, the Educational Development Center and Consultant to the President's Council on Environmental Quality; Dr. Lynton K. Caldwell, ecologist, writer and Professor of Government; and Dr. Lee Talbot, ecologist formerly with the Smithsonian Institution and now Senior Scientist with the President's Council on Environmental Quality.

These were only a few of those within the field of ecology; others of similar stature from many areas of knowledge and activity have been involved. In addition to ecology, the central areas of concern were those of education and broadcasting. A listing of the people who helped us through formal arrangements is given in the appendices referring to PBEC workshops, the PBEC Advisory Council and PBEC consultants.[42,43,44]

Furthermore, the staff of PBEC has had a continuing and deepening professional involvement with environmental concerns. The Director was previously with the National Park Service, where he was responsible for the initiation of three environment projects. Another staff member had been educational director of the Conservation Foundation, and others had been previously involved in environmental action efforts, environmental education curriculum development, and so forth.

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[41] Public Law 91-516, 91st Congress, H.R. 18260, Environmental Education Act, October 30, 1970.

[42] PBEC List of Consultants, Appendix VI, pp. 350-351.

[43] PBEC Advisory Council, Overview, pp. 45-47.

[44] PBEC Planning Committee, Overview, pp. 48, 49.

Daily and Sunday newspapers from 17 major cities across the country were read daily, as were periodicals and trade publications. Not only were environmental/ecological and human value oriented books read as they became available, but so, indeed, were those previously available.[45] Current Contents, published by the Institute for Scientific Information, was particularly useful. Back issues were used as well, in the search for each useful or stimulating article or periodical which would add to understanding or awareness of the environmental concerns, needs, or opportunities.

The President's Council on Environmental Quality developed, as their first annual report, an excellent overview of the present dangers and opportunities.

Their view is underlined by a PBEC summary[46] and by statements in the literature such as:

"The physical environment is, of course, only one dimension of the quality of human life. In focusing upon physical factors, one excludes important social and psychological factors such as order and security, social mobility, and the social participation or alienation of the individual. All of these environmental factors, along with per capita income, wealth, health and education, need enhancement."[47] Or, "... it may be that, in America, where nature has perhaps been most ruthlessly exploited and where an environmental ethic has perhaps been least comprehensible to the mass of the people, a concept of the environment might now develop that will unite scientific fact, social outlook, and ethical value."[48]

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[45] Exhibit 39g - A guiding bibliography entitled, "An Overview Bibliography for Environmental Education for the Future, " which was a partial listing of those books used again and again.

[46] Mathematica, Quality of Life Issues and Indications. October, 1970.

[47] Jacoby, Neil H. "The Environmental Crisis," The Center Magazine, November/December, 1970.

However, Peter Drucker, in "Landmarks of Tomorrow," reminds us, "...innovation is more than a new method. It is a new view of the universe, as one of risk rather than of chance or of certainty. It is a new view of man's role in the universe; he creates order by taking risks. And this means that innovation, rather than being an assertion of human power, is an acceptance of human responsibility." And John Steinhart in his report, Search for a Future, to the Ford Foundation, stresses: "We have reached the point where the earth can no longer take what man is doing to it. In too many cases, man has confronted his environment with a bludgeon when he should have used a tweezers." As cultural anthropologist Jules Henry says in Culture Against Man, "This capacity to use his culture against himself may yet overtake man and destroy him while he works on his ultimateproblem - learning to live with himself." Men must learn to better live with themselves, with each other and with the rest of the biotic and physical world at the same time.

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[48] Caldwell, Lynton K., Environment, Natural History Press, 1970.

3. Working Philosophies and Definitions of Environmental Education: Many see the failure of the philosophies and definitions we live by as one and the same with "...our failure to perceive the environment as a totality and to understand and to recognize the fundamental interdependence of all its parts, including man himself."[49]

"We need new knowledge, new perceptions, new attitudes--and these must extend to all levels of government and throughout the private sector as well: to industry; to the professions; to each individual citizen in his job and in his home. We must seek nothing less than a basic reform in the way our society looks at problems and makes decisions.

"It is also vital that our entire society develop a new understanding and a new awareness of man's relation to his environment--what might be called 'environmental literacy.' This will require the development and teaching of environmental concepts at every point in the educational process.

"In dealing with the environment we must learn not how to master nature but how to master ourselves, our institutions, and our technology. We must achieve a new awareness of our dependence on our surroundings and on the natural systems which support all life, but awareness must be coupled with a full realization of our enormous capability to alter these surroundings.

"...we should set ourselves a higher goal than merely remedying the damage wrought in decades past. We should strive for an environment that not only sustains life but enriches life, harmonizing the works of man and nature for the greater good of all."[50]

The U.S. Commissioner of Education said in March, 1970: "Environmental Education is not just another term for conservation education, resource-use education, or outdoor education, nor is it the sum of the anti-pollution activities and

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49, Nixon, Richard M., Environmental Quality, (First Annual
50. Report), U.S. Government Printing Office, 1970.

actions that have recently come to the forefront of the public mind and concern. Rather, Environmental Education is an umbrella term that includes a synthesis of the hard sciences, social sciences, and humanities within an educational process that includes formal and non-formal educational experiences and employs different learning environments other than the traditional classroom.

"Environmental Education is a means of helping each student and citizen to develop an attitude of personal responsibility on which our survival depends. This new educational approach will supply the knowledge, skill, and motiviation needed to contribute rationally to the decision-making process on issues involving the quality of the environment and life-styles.

"This innovative project once again demonstrates the utilization of the great potential of television for educational purposes. It will provide an immediate educational program designed to increase public awareness of the environmental problems facing our society and promote understanding of the steps necessary to restore balance to a threatened environment."

In the final form of the Environmental Education Act of 1970, which has now passed after many months of debate, talking and searching, Congress said: "For the purpose of this Act, the term "environmental education" means the educational process dealing with man's relationship with his natural and manmade surroundings, and includes the relation of population, pollution, resource allocation and depletion, conservation, transportation, technology, and urban and rural planning to the total human environment."[51]

Statements such as these, the surveys, the literature already cited and published and unpublished papers from a wide variety of sources add to the impact. These include William Stapp's Considerations of a Few Approaches to Environmental Man's Impact on the Global Environment, the work of Buckminster Fuller's World Design Science Decade Group, and efforts of Ekistics, Ecology Action groups, architects and designers,

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51. Public Law 91-516, 91st Congress, H.R. 18260, Environmental Education Act, October 30, 1970.

government agencies and radio and television programming, among others. All were used in synthesizing and redefining both a working definition and a philosophy of environmental education.

As a further example of the diversity of material found helpful, the documents ranged from Educating To Design and Build a Better Environment, a report on a seminar, "Education and the Professionals for a Changing Environment," to the three volume report of the American Institute of Planners' two-year national consultation to look into The Next Fifty Years/1967-2017.[52] The latter report has approximately fifty authors, e.g., B. Fuller, G. Myrdal, J. Platt, H. Taylor, B. Rustin, T. Hoving, R. Dubos and W. Weaton, contributing.

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[52] AIP, Environment for Man, Environment and Change, Environment and Policy, Indiana University Press, 1967.

Many of the sources previously referred to included checklists of issues and opportunities which they developed for their own purposes. Many of them have use for other purposes and in other situations. For example: [53]

	A. Physiological	B. Safety & Security	C. Affection & Belonging	D. Esteem	E. Self-actualization	F. Cognitive & Aesthetic
1. Nature	Man/nature interdependence Pollution of Nature Exhaustion of resources	Natural dangers •Fight or flight• reaction of man	Bases of interpersonal attraction and love	Individual and racial Competitiveness of existence	Unity of universe and man's place therein	•Knowing• & •experiencing• as existential phenomena
2. Self	Physiological nature of individual General health	Trait-anxiety	Self-hate Individual needs for affection	Feelings of worthlessness Individual needs for esteem Self-esteem	Feelings of usefulness Lack of motivation Total pattern of needs, abilities, interests	Individual needs for cognitive and aesthetic satisfaction Impairments of cognitive and aesthetic abilities
3. Family	Provision of food, shelter, health care, etc	Provision of protection Family stability Family mobility	Parental love Family acceptance identity	Family recognition Family status Inter-member esteem	Family roles Identification with family members	Provision of education, instruction, information music, art, etc
4. Significant Others	Assistance in meeting physiological needs Communicable disease	Provision of aid and comfort Threats, Crime Mobility	Interpersonal love Group membership Discrimination Rejection by others	Relative deprivation Recognition by others Social comparison	Role relationships vis-a-vis others Interdependencies Self-definition vis-a-vis others	Significant others (e.g., teachers) as sources of information, art, music, etc Intellectual and aesthetic stimulation, inspiration from others
5. City & County	Food programs Health programs Housing programs Hospitals	Police and legal programs Safety programs Protection of individual rights	Family protection program Encouragement of political participation Equal opportunity programs Rehabilitation	Acessibility of city and county facilities Improved handling of welfare recipients	Recreation activities Programs to encourage individual development Community/self relationships	Libraries (provision and operation thereof) Educational programs Art and music programs
6. State & Region	Welfare (state) Surplus food distribution Health planning (state) State Hospitals	State police Pollution control Prisons Courts National guard	Adoption programs Foster home programs	Anti-discrimination policies	Education and training Vocational rehabilitation	State colleges and universities Educational TV Museums and libraries State school system Parks and conservation programs (state)
7. Nation	Food surplus programs National health programs Pollution control	Federal courts National defense Federal law enforcement Social security	•Anti-family• welfare laws Promotion of national identity	Equal opportunities Patriotism	Aid to education and training Protection of individual rights	Information dissemination programs National museums National parks and conservation programs
8. World Cultures	Technology and agriculture Technology and pollution International aid programs	•Balance of Terror• Affluence and security International law and law enforcement	•Technological Society• and dehumanization Cultural exchange programs Cultural change and alienation	Emphasis on human rights and individual worth	Rapidity of cultural change Role differentation within cultures Pressures to conform	Cultural values regarding knowledge and appreciation of beauty Religious values and systems Belief systems (philosophies)
9. Shells	Protection from weather Environmental controls	Protection from others Privacy for security Crowding	Group/family privacy Facilitation of interaction Access to housing and public buildings	Pride of home ownership Pride of community structures	Facilitation or inhibition of self-development and self-expression by shells	Architectural design to facilitate or inhibit use of libraries, museums, schools, etc. Design for beauty
10. Networks	Systems for distribution of food, water, power, medical information etc.	Systems for lighting dark streets, providing safe transportation, distribution of security forces, legal and security information, providing social-emotional support	Systems for maintaining contact through transportation, communication, social networks	Access to networks Pride in car ownership Distribution of information regarding individual worth	Impact of communication and transportation on expanding nature of individual's world	Improved access to information, art, recreation through transportation and communication networks

53. A "Needs by Sources of Satisfaction Analysis of Environmental Habitability Chart," by William Haythorn, in Ekistics, September,1970.

4. Awareness of Educational Styles, Content and Direction: The PBEC educational team has had considerable experience with diverse educational program approaches and populations. Represented in this experience is work with: Open Classrooms, New Careers, public school teaching, Early Childhood Education, International Conservation Education, experimental schools (public and independent), teacher training, preparation for the teachers of teachers, perceptual education, educational materials development, educational curriculum development, social studies curriculum development, Inter-Cultural Education, African Education, education of trainable retarded children and Special Education in general, Education of American Indians, university education faculty, Educational Television, training in art, art education and architecture, work with Mexican-American migrant youth, group work, and work with inner city children sometimes identified as school problems. All this experience contributes to the effectiveness of meeting the educational needs and opportunities of this time. These very same opportunities are viewed by most as a crisis. Indeed, if we do dare to care enough, if we do not dare to act, it could well be a disaster.

"We are also heading straight into a pedagogic crisis. The college students who are in open rebellion against the educational establishment everywhere no longer consider the classroom 'relevant'! And irrelevance is the worst thing one can say about education. Worse still, today's small children are bored stiff by school. Small children cannot rebel by occupying the school or by building barricades in the street. They have, however, a much more potent weapon: they can stop learning. And this is what the generation now reaching school age is apparently about to do every place. It has become accustomed to a standard of effectiveness in communications that makes unendurable the low educational productivity of the typical classroom.

"Only a generation ago school opened up the world to children. It gave access to an experience that was infinitely wider, richer, and more colorful than the confined static environment that village and family provided. It was excitement, drama, vision, even in the staid and familiar words of the primer. Teaching was poor, and discipline often harsh and unimaginative. Yet to enter school was an adventure.

"But in the developed areas of the world, school no longer is the access to a new world of experience. It no longer is the educator. It is rather a pinched and anemic substitute. The preschool child, even in the peasant cottage, is today introduced to the world through radio and television in a much more direct, more effective, more gripping manner than the most gifted schoolmaster could emulate. Whatever the contents of the electronic messages, in form and style they are expert, masterly, teaching, communicating.

"The trouble with the 'deprived' children from the black ghettos may be in part that they have learned far too much before they enter school. They, all our studies show, spend the most time in front of the TV set--there are few other experiences and stimulations in the slum. They may, therefore, both expect too much when they come to school, and expect it in different perceptual form. They may indeed live in McLuhan's 'post-literate' world.

"Children enter school today with different perceptions and different expectations. A level of teaching that was acceptable to older generations, who had no standards of comparison, dissatisfies the children of the television age; bores them; offends them. They are in all probability infinitely more ready to learn than earlier generations were.

"The children do not know, of course, why they find school boring rather than exciting, and stifling rather than informative. But they react by not learning what is presented to them at so much lower a level of professional competence and pedagogic effectiveness than the level to which TV and radio have accustomed them.

"Teaching, on the other hand, has to do with meaning and insight. It has to do with application of information, with reaching out, with understanding and enjoyment, and with the insight that cannot be learned. Teaching has a lot more to do with perception than it has to do apparently with intellect. And teaching is done by example. Teaching requires a 'teacher.' The teacher can be a book, a piece of music, perhaps even the student himself."[54]

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[54] Drucker, P., The Age of Discontinuity, Harper & Row, 1969.

These are the observations of a business man, a business philosopher, perhaps one of America's finest. Are his observations inaccurate? He was one of the originators of the "management by results" approach and is commonly recognized for his leadership. There seems little disagreement between the preceeding assessment and the following:

"Most of all, however, I am indignant at the failures of the public schools themselves. 'The most deadly of all possible sins,' Erik Erikson suggests, 'is the mutilation of a child's spirit.' It is not possible to spend any prolonged period visiting public school classrooms without being appalled by the mutilation visible everywhere--mutilation of spontaneity, of joy in learning, of pleasure in creating, of sense of self. The public schools-'those 'killers of the dream,' (to appropriate a phrase of Lillian Smith's) -- are the kind of institution one cannot really dislike until one gets to know them well. Because adults take the schools so much for granted, they fail to appreciate what grim, joyless places most American schools are, how oppressive and petty are the rules by which they are governed, how intellectually sterile and esthetically barren the atmosphere, what an appalling lack of civility obtains on the part of teachers and principals, what contempt they unconsciously display for children as children."[55]

As an independent reporter, Silberman uses heavy language as do other independent writers but even government reports create mandates for a reorientation to what learning and teaching mean.

"In the past, the public has equated going to school with education. The role of the school was to transmit informational values. The society of today is one changing so rapidly that skills and information become outmoded, and traditional values are under challenge. Furthermore, the proportion of information that children receive from the mass media is so large and the range of values to which they are exposed so diverse,that it may well be that the schools should be devoted to giving them the cognitive skills for integrating information, and a framework within which to sort out the diverse values to which they are exposed.

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55. Silberman, C., Crisis in the Classroom: The Remaking of American Education (a three and a half year report to Carnegie Corporation). Random House, 1970.

"In addition to what may fundamentally be a new orientation demanded of the schools, they are being asked to respond to current problems in two ways. First, it is said that they should be relevant to the needs of the student, which is to say that they should teach him as an individual to be able to deal with contemporary problems. Second, the higher institutions of learning, in particular, are being asked to solve the present problems of society.

"The choices with which the schools are confronted involve, on the one hand, teaching problem-solving skills, fostering the development of students as individuals and conducting problem-oriented research. Or, on the other hand, there is the option of continuing to transmit the old knowledge and values at the primary and secondary levels, and continuing to transmit the traditional knowledge and seeking to develop knowledge for its own sake at the higher levels of education."[56]

The following are excerpts which develop the same message in another style for similar purposes. They are from a Canadian Government Report:

"We stand today in the dawn of our second century and assess the field of future education. Surrounded by the greatest array of learning paraphernalia we have ever seen, and immersed in new knowledge, we must not lose sight of the human needs that the new dawn brings. We are at once the heirs of the past and the stewards of the future, and while we take pride in our inheritance, we can ill afford to bury our talents in the soils of satisfaction. We have in our hands means of change for human betterment that few people of the world enjoy. We must find a way to their application that will germinate the seeds of a more fruitful way of life, not only for the people of Ontario but for all Canadians; and hopefully the harvest will make its contribution to all mankind.

"Seen in this light, ours is no vision of education for a provincial priority or traditional national pride, but for the good of all men. It is a vision of greatness and dignity for the individual through the exercise of public and private responsibility.

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[56] National Goals Research Staff, Toward Balanced Growth: Quantity with Quality, U.S.Government Printing Office,1970.

"We will rightly stand condemned by history if we fail to provide what our people need and what our resources and our know-how make readily possible.

"It is something to work for, this social fabric; for it must embrace not only our founding cultures, but those that spring from many other ethnic roots. It must know no provincial boundaries, nor exclude any Canadian whatever his origin from its protective shield. Above all, it must not require the melting pot of uniformity. Our search for agreement within diversity, although slow and difficult, serves to protect us from the many pressures of conformity with which technology assails us. In this opportunity to resist the melting pot of uniformity lies our greatest hope of survival as a nation with distinct characteristics of our own...

"The changing patterns of living, of working, and of recreation require that the educational system prepare the children of tomorrow to live in a world vastly different from that of this generation. There must be education for leisure time, for a more mature culture, and for a greater sense of personal responsibility, and the curriculum must be designed accordingly.

"Very many other and important changes and innovations require consideration. The lock-step structure of past times must give way to a system in which the child will progress from year to year throughout the school system without the hazards and frustrations of failure. His natural curiosity and initiative must be recognized and developed. New methods of assessment and promotion must be devised. Counselling by competent persons should be an integral part of the educational process. The atmosphere within the classroom must be positive and encourageing. The fixed positions of pupil and teacher, the insistence on silence, and the punitive approach must give way to a more relaxed teacher-pupil relationship which will encourage discussion, inquiry, and experimentation, and enhance the dignity of the individual.

"The curriculum must provide a greater array of learning experiences than heretofore. Classes must be more mobile, within and beyond the local environment, and the rigid position of education must yield to a flexibility capable of meeting new needs. These and other innovations will be aimed at developing in the child a sense of personal achievement and responsibility commensurate with his age and ability, to the end that going to school will be a pleasant growing experience, and that as he enters and passes through adolescence he will do so without any sudden or traumatic change and without a sense of alienation."

"A final word on this aspect of the report. A skilled and inspired teacher can work wonders with any curriculum in almost any circumstances. Some teachers can do little even with the best of learning programs; but the great majority of teachers will be helped immensely by a good curriculum designed to meet the needs of the time."

"Thus the good teacher and the good curriculum are equally essential. Given an increased measure of professional freedom, supported by all the aids and organizational arrangements available, and inspired by a philosophy which puts foremost the needs and dignity of the child, our teachers will provide the education we envisage, and achieve the results we confidently foresee from the implementation of our views and recommendations."[57]

It is not only true for Canada, it is true for the United States and not only true for education but environmental education. James Aldrich, in an unpublished paper, states it this way:

"To a large extent what is needed is a statement of the educational opportunity. For what we have before us is more characterized by the opportunity to make significant reforms in educational practice rather than the patching or elimination of a problem. This is not a trivial play on words, but more a matter of a proper orientation to the task we are attempting to address. Much of the rhetoric dealing with the needs for educational reform does not reflect new ideas, but the environmental theme provides a new conceptual framework, a new vehicle for implementing these ideas. The egg-crate construction of most schools is only a reflection of the egg-crate, discipline-oriented approach to education. Rather than teaching about the inter-relatedness and wholeness of life we have more and more isolated and thus distorted the educational fare.

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[57] The Report of the Provincial Committee on Aims and Objectives of Education in the Schools of Ontario, *Living and Learning*, Ontario Department of Education, 1968.

The rash of materials development and educational writing that has occurred during the past ten years is strong evidence of the discontent with existing educational practice. All of the writers do not, of course, agree but whether you read Holt, Bruner, Drucker or Silberman, you will find two major themes: the irrelevance of subject matter as now taught and organized, and the failure to truly individualize learning. But even those disciples of the open classroom frequently preach a self-contradicting dogma; ironic as it may seem, there is almost no room for an introvert in the extroverted ("open") classroom. What is seriously wanting are materials that by their very arrangement invite teachers and students to explore their world, in and out of school, in a variety of ways. The current public concern with the quality of the environment offers an exciting intellectual scheme for organizing and promoting educational materials which provide the opportunities for exploring our individual and communal physical, social and psychological 'environments.' BUT the true legitimacy of the educational ideas is that the educational issues are not unique to the considerations of environmental quality. Charles A. Reich has touched on this element in his article and book, The Greening of America. For the moment though, environment is the organizing theme, the organizing framework for transforming education from a reflection of society as it has been to a vision of what society can be.

The remarkable bi-partisan support of the recently signed Environmental Education Act is ample testimony of the extent to which environment and education have been linked as a popular issue. At the same time, the published Hearings of the House Select Subcommittee on Education indicate the range of definition given to environmental education. What is needed are materials which by their very form as well as content give vivid evidence of a style of learning that provides the opportunities for each student, each individual to explore and build relationships to the many environments he lives in.

The Council on Environmental Quality in its first annual report, labeled environmental education as "Education that Cannot Wait." The National Science Teachers' Association have made the topic a major theme in their planning for the future. The National Council of Social Studies gave the subject significant space in their recent annual meetings. The Association for Supervision and Curriculum Development made it one of the organizing strands for their annual meeting and their World Conference on Education. The NEA has established a program under the heading Man and Environment. But none of these organizations is developing materials for the classroom to meet the needs which they are citing."

In addition to conflicts and hopes about providing help to children, parents and teachers and about the ambiguity of various styles of teaching and learning there is confusion due to the problems of needing to be accountable and yet to avoid interfering with the constructive development of the learning process. Evaluation too often is effective only in introducing clouds of caution and cautious rationalizations. Inaction and action for the wrong purposes combines to crush the hopes of children, parents, teachers and even their 'traditional enemy,' administrators; who are, more often than not, parents and teachers.

"...the difficulty the teachers have in voicing questions, problems, and doubts which they fear will be construed as a lack of intelligence and competence and the tendency on the part of administrators and supervisors to relate to teachers in a way conducive to two-way conversations. When will we take seriously the blatant fact that a teacher is part of a complicated social system and that her effectiveness as a teacher must, in part at least, reflect her place in and her relationships with that system? The disadvantage of this way of thinking is that it removes the teacher as the convenient scapegoat for the ills of our schools."[58]

"Objectivity and judgment are also important in formative evaluation. It is extremely difficult for course developers to be objective and critical of their own work, yet it is absolutely necessary. As in any creative work, there must be a continuous, balanced re-cycling of productive and critical phases. The first and most severe critic must be the developer. But his own criticism is not enough, for inevitably he will be biased and unable to see all the weak points of his work. Therefore, he must solicit critical opinion from his immediate colleagues and various outsiders -- specialists in educational media and evaluation, university professors of the subject, and school teachers and students using trial versions of the course. Yet here a balance is needed for critical capacity often outruns the productive with the result that work is never finished. Too much criticism, doubt, and revision may prevent bringing work to fruition. No amount of revising and polishing of a course or evaluation will result in a perfect product. One can hope for a reasonable good job given the inevitable constraints of time, energy and funds. After this, remaining creative energy might well be channeled into objectivity and judgment in identifying the strengths and weaknesses of the finished course and evaluation and their implications for future projects.

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[58] 58. Kaplan, Frances and Seymour B. Sarason, The Psycho-Educational Clinic, Massachusetts Department of Mental Health, 1970.

> "Perhaps the role of judgment has been underestimated; the evaluator must judge. Bias can enter the 'objective' methods and results through the choice of groups and instruments employed in the evaluation. Therefore, judgments and decisions regarding technical methods must stem from an explicit rationale for the evaluation so that the reader may judge its validity. A rationale is needed for the interpretation and judgment of the results; these processes must be explicit, couched in interpretive rather than objective language, and should err on the side of caution."[59]

The advent of new technology has exposed or created new areas of educational development as well.

> "As a matter of fact, the most conspicuous result of television teaching has been an incidental byproduct: the medium has displayed in public what had heretofore gone on behind too many closed classroom doors -- uninspired teaching. But the medium should not be blamed for magnifying the basic flaws in instructional procedures. As it has been used to date,

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[59] Walberg, H., "Curriculum Evaluation: Problems and Guidelines," The Record, Vol. 71, No. 4, May, 1970.

television cannot upgrade the quality of American education; it can only alleviate the problems created by having too few teachers, too many students, and swelling curriculums."[60]

"But as the general level of teaching improved and the public came to provide the facilities needed for good teaching, the disadvantages of the system led to its downfall. The major factor involved was that it proved impossible to apply what the educational scientists learned about the values of individualized instruction in a class in which all of the members were forced by a television set to move at the same pace. Another factor was the near revolt on the part of competent teachers and prospective teachers who said that there was no prupose in spending time, energy and money in preparation for teaching if they were not to be allowed to teach. In the fields involving controversy, the social studies and humanities, society came to realize the great danger inherent in a situation where any agency, public or private, can decide what should be taught to all persons.

"Nevertheless, we have profited much from the great TV experiment. Almost all classrooms are equipped with television apparatus, even though it seldom carries live programs. As a result of the spectacular developments in technology, teachers can readily select, from vast repositories of films and tapes, programs or part of programs that fit in with their own plans and use them when they are appropriate."[61]

Even the essential pluralism of our country has been denied by the attitudes with which curriculum developers and educational organizations have approached schools yet, "There is no American School system, only a multitude of different systems, each with its own concerns, its own problems, its own needs and its own internal kind of perfection. Each is affected by a complex interaction of national and local attitudes and pressures, community conditions, university scholarship, and legislative requirements. Many of them are similar, and few may be almost interchangeable, but each of them is in some respect unique."[62]

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60. Murphy, J. and R. Gross, Learning By Television, Fund for Advancement of Education, 1966.

61. Cartwright, W. H., "The Teacher in 2065," Teachers College Record, Vol. 66, No. 4., January, 1965.

62. Schrag, Peter, Voices in the Classroom: Public Schools and Public Attitudes, Beacon Press, 1965.

Still the search for new attitudes, new styles, new approaches goes on, and just as Harold Taylor points out in The World and the American Teacher, teachers learn things best by teaching them. Those who are trying to learn how to help teachers will do so by trying to help them. Learners need aid to enable them to be open with their own experiences. This is true for learners at all levels, be they children, teachers or the teachers of teachers.

"While the examples I have cited above happen to be high schools, there are similar trends developing in elementary schools. Here the line of attack is to break down the traditional concept of the self-contained classroom which has always limited the kinds of learning experiences provided by the school. Team teaching, to the extent that it involves teachers with a variety of backgrounds working in close cooperation with each other, has cracked the classroom wall. Further inroads are being made by schools experimenting with open-structure or with the integrated day,[63] an approach to education based on the work of John Dewey and Jean Piaget, but developed most fully in British primary schools. Here, as in the high schools, we are dealing with a potential for imaginative programming which has not been widely recognized, particularly on this side of the Atlantic.

"The significance of the integrated day for environmental education is profound indeed. It places an emphasis on an eclectic environmentalism based on the heavy use of materials found in the local environment ranging from building rubble to living plants and animals. It combines classrooms, breaking down the walls so that children can work together in teams on problems which interest them and which at the same time provide valuable learning experiences. It disregards the traditional subject area boundaries and follows a unified approach to learning which much more closely approximates the child's actual perception of his environment. It drops the rigid schedule enforced by periodic bells and allows the use

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63. The term "integrated day" refers to a way of organizing the classroom without the formal constraints imposed by fixed-length classes dealing with specialized, academic disciplines. It also implies an inductive, individualized approach to learning.

of blocks of time to pursue problems which could not even be tackled in a more traditional classroom. In fact, after seeing an integrated day in process, it is hard to imagine how effective environmental education could be pursued in the elementary school under any less open-structured conditions.

"An integrated day affords an opportunity to achieve certain behavioral objectives through the kinds of learning experiences that it provides for children. Thus the excavation of a pile of building rubble treated as a neighborhood archeological site might be used to teach children a good deal about exploratory techniques and problem solving as well as about the history, climate, demography, and so forth, of their community. But, in addition, the fact that the teaching deals with the immediate environment and involves children in an open-ended exploration of those surroundings carries an implication for the children that their own environment and their individual perceptions of it really count. This kind of individualized, child-centered learning which deals with the immediate physical surroundings certainly develops different and presumably more positive attitudes, values, and behavior toward the environment than the traditional, more structured approaches. Furthermore we can make the assumption that programs which involve students in attempts to solve actual environmental problems can engender a social commitment that may have a lasting effect on their behavior.

"The more successful environmental programs have undoubtedly contributed to the willingness of the schools to open the classroom doors to new experiences. The great public concern over environmental degradation is now reinforcing that movement and the result may be the best chance yet for introducing behaviorally effective educational programs. To realize this opportunity schools must make use of that particular environment perceived by their students. In effect they must teach through the environment using the community as a source of learning experiences rather than about the environment as a generalized object of study. Furthermore, if schools are to affect the behavior of children in order to moderate society's impact on the environment, they must lead students to explore the social interactions and the whole system of human values, concerns, and assumptions which underlie our behavior. After all, the physical limitations of natural systems are constant, and technology is only effective in alleviating the pressures we place on our environment when we use it to that purpose. The key to preserving the human environment is inescapably the collective behavior of individual citizens. In the final analysis, the success of environmental education will be measured in terms of its ability to change the behavior of society."[64]

To reinforce the previous statement which was from a foundation and to summarize an increasingly common position regarding the task of curriculum and school innovation, consider the following from the National Goals Research Staff:

"In the view of many, a priority task for the Nations is to reestablish the mutually reinforcing relationship between the educational system and the long-range qualitative and quantitative requirements for development of society as a whole. The relationship is a prerequisite for the harmonious transition of the social system to that richer stage of development to which America aspires in its third century. A better understanding of the relationships between education and society is also necessary to develop criteria against which the educational system's effectiveness may be assessed.[65]

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[64] Ames, Edward A., Schools and the Environment, Ford Foundation, 1969.

[65] National Goals Research Staff, Toward Balanced Growth: Quantity with Quality, U.S. Government Printing Office, 1970.

5. Awareness of Broadcasting Potential:[66] There are 200 public non-commerical television stations and 96 Corporation for Public Broadcasting radio stations. The weekly audience of non-commercial TV broadcasts alone was million in the year ending February, 1970, an increase of 42 per cent from the previous year.

Public radio can reach Americans at home, in school, in the wilderness, or in cars. In the past year, it did reach 120 million people through 462 stations.

"The national networks were set up by, and are supported by the Corporation for Public Broadcasting (CPB). CPB was created by Congress in 1967 to be an independent, non-profit organization acting on behalf of all people in the country, to strengthen Public Broadcasting nationally and help provide programs of excellence and diversity. It is supported by both government and private funds.

"CPB helps to fund such programs as "Sesame Street," the successful pre-school education program, "Civilisation," the personal view of history by Sir Kenneth Clark, "Forsythe Saga," a family drama series, and the "Advocates," a national debate on public issues.

This is growing power to reach people and inform them, teach people and entertain them. Public broadcasting is now ready to tackle a major national problem in a massive, sustained way.[67]

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[66] Refer to Addendum VIII.

[67] The Public Broadcasting Environment Center, An information booklet published and distributed by PBEC, November, 1970.

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Wilbur Schramm and Godwin Chu explored 52 propositions in six areas of inquiry concerning the conditions for effective learning from television. The areas were: [68]

a. How much pupils learn from instructional television
b. Efficient use of the medium in a school system
c. Treatment, situation and pupil variables
d. Attitudes toward instructional television
e. Television in developing regions
f. Learning from television compared with learning from other media.

The conclusions emphasized points Schramm made five years earlier in an article entitled: "What We Know about Learning from Instructional Television."

"There can no longer be any doubt that students learn efficiently from instructional television. The fact has been demonstrated now in hundreds of schools, by thousands of students, in every part of the United States and in several other countries...

"Instructional television is at least as effective as ordinary classroom instruction, when the results are measured by the usual final examinations or by standardized tests... (And) employing the usual tests that schools use to measure the progress of their students, we can say with considerable confidence that in 65 per cent of a very large number of comparisons between televised and classroom teaching, there is not significant difference. In 21 per cent, students learned significantly more, in 14 per cent, they learned significantly less, from television." [69]

Schramm does make strong arguments for the use of TV for he has shown that "no significant difference between test scores of students taught by *experienced* and *inexperienced* teachers *if the films were a part of the course!*"

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[68] Schramm, Wilbur and Godwin Chu, *Learning From Television: What the Research Says*, NAEB, 1967.

[69] Schramm, Wilbur, *Mass Media and National Development*, Stanford Press, 1964.

Furthermore, throughout Mass Communication and National Development, Schramm makes the point that mass media including TV can be effective in:

(1) Serving as a watchman for dangers or opportunities.
(2) Widening horizons.
(3) Focusing attention.
(4) Raising aspirations.
(5) Creating a climate for development.
(6) Conferring status on a viewpoint, attitude, or person.
(7) Broadening policy dialogue.
(8) Enforcing social norms.
(9) Helping to form tastes.
(10) Teaching.

Naturally, Schramm's categories and discussions of them reveal overlaps, and emphasize them, rather than looking at them as exclusive labels or functions which would mutually exclude each other.

Henri Dieuzeide of the National Pedagogique of Paris also tried to show advantages and disadvantages of radio and television.[70] A restatement of these points follows:

(1) Dissemination Advantages

  (a) distribution of a single...message over the whole of a receiving network;
  (b) immediate, instantaneous, automatic dissemination of the message;
  (c) regularity of delivery, making possible the dissemination of a coherent series of messages permitting a coordinated action of an institutional character.

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[70] Dieuzeide, Henri, "Notes for a Rational Theory on the Use of Radio and Television for Educational Purposes, EBU Review, 75B, 1962.

(2) Psychological Advantages

(a) the character of particular immediacy and authenticity of "direct" messages which coexist with the psychological attention span of the spectator;
(b) the personalized, intimate character of the message;
(c) the feeling of belonging to a community of "receivers" and of participating in an activity of national importance.

(3) Disadvantages

(a) fixed timetables which tie the audience to a specific hour;
(b) uncertainty (more or less great) (on the part of the teacher) before the broadcast as to what the message will contain;
(c) undetermined and immutable presentation of the message (structure, rhythm), all revision being impossible.

(4) Successful Uses of Television

(a) enrichment broadcasts which are integrated into classroom teaching and make a qualitative improvement in the teaching;
(b) broadcasts designed to alleviate the deficiencies of an existing educational system -- for example, substituting for unqualified teaching staff or upgrading present teachers -- and thus making a largely quantitative improvement in the system;
(c) extension broadcasts, which extend or prolong educational opportunities for individuals formed for educational purposes, the individuals in this case having already had some schooling;

(d) development broadcasts designed to carry education to communities where there has never been a school.

J. Murphy and R. Gross tell of a report which shows "... how televised teaching may be improved to meet some of the challenges facing education in the years ahead. Television is one of several promising tools now available to strengthen the educational system and make it more responsive to individual and social needs."

"Television works as an educational tool. There is no question of its validity as a medium of instruction. Students can learn from television, as they can learn from teachers and tests, radio, recordings, and films, but educators are still far from grasping the real nature and potential of television."[71]

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[71] Murphy, J. and R. Gross, Learning by Television, Fund for the Advancement of Education, 1966.

EXHIBIT 39a
POTENTIAL PATHWAYS MATERIALS

____Activity Suggestions

____Books

- Bound
- Looseleaf
- Paperback

____Booklets (info.,idea, inspiration)

- Album
- Clipping
- Diary
- Publicity
- Scrapbook

____Bulletin Board Material

____Buttons

____Campaign Material

____Cartoon

____Catalogue

____Chalkboard Material

____Chart

____Club or Society Material

____Collection

____Competition Material

____Cut Out

____Data Processing Material

____Demonstration Material

____Diagrams

____Diorama

____Display Device

- Animated Display
- Display Board
  - Combination
  - Flannel
  - Magnetic
  - Peg
  - Plastic

____Dramatic Presentation Ideas

- Costumed Play
- Marionette
- Mask
- Miniature Stage
- Pageant
- Pantomime
- Puppet
- Radio Play
- Role Playing
- Shadow Play
- Tableau

____Duplicator Materials

- Blueprinting
- Carbon Paper
- Diazo
- Gelatin
- Offset
- Photographic
  - Contact
  - Optical
- Rubber Stamp
- Spirit
- Stencil
- Xerography

____Experiment Material

____Exhibits

____Exploded View Drawings

____Facsimilies

____Field Trip Ideas

- Excursion
- School Journey

____Filing System Ideas

____Film Strip

- Silent
- Sound

____Games

____Globe

____Graphs

____Information Storage & Retrieval Systems Ideas

____Interviews

- Public Forum Ideas
- Printed Photo Interviews
- Projects

____Kits

____Library Use Suggestions

____Magazine Use Suggestions

____Maps

____Mock-Up Ideas

____Motion Picture-8mm & 16mm

- Silent or Sound
  - Analytical
  - Animated
  - High Speed
  - Single Concept
  - Stop-Motion
  - Time Lapse

____Moulds

____Museum Use Ideas

____Newspaper Use Ideas

____Notebook Use Ideas

____Object Use Ideas

____Optical Instrument Uses

- Binocular
- Micro-Projector
- Microscope
- Telescope

____Pamphlets

____Periodicals

____Photos

- Still
- Motion Picture

____Pictorial Cards

____Pictures

- Drawing
- Frieze
- Mural
- Painting
- Photograph
- Poster
- Sketch

____Posters

____Presentation Device Suggestions

- Mechanical Writing Tablet
- Presentation Unit
- Status Boards

____Programmed Learning Devices

____Projects - Suggestions

- Individual
- Small Group
- Large Group

____Projection Equipment Uses

- Projector
  - Cartridge Loading
  - Combination
  - Continuous
  - Filmstrip
  - Micro
  - Opaque
  - Overhead
  - Silent Film
  - Slide
  - Sound Film
  - Stereo
- Screen Uses
  - Front Projection
  - Multiple
  - Rear Projection
  - Wide

____Publication Suggestions

- Class Papers
- School Papers
- Newsletters
- Broadsheets
- Handouts

____Quotations

____Radio Use Suggestions

____Recordings

- Audio
  - Disc
  - Magnetic
    - Tape
    - Disc
- Video
  - Kinescope
  - Kine Transfer
  - Magnetic
  - Thermoplastic

____Reprints

____Sandtable

____Signs

____Silk Screen Visual

____Slides

____Sound Equipment Uses

- Amplifier
- Distribution System
  - Induction Loop
  - Oscillator
  - Wired
- Headphones
- Loudspeaker

- Microphone
- Radio
- Record Player
- School Sound System
- Stereophonic Equipment
- Tape Recorder

____Source Materials

____Specimens

____Stereograph Materials

- Stereoscope
- Telebinocular

____Storage Equipment Suggestions

- Modular Storage Units

____Tachistoscopes

____Teacher Suggestions

____Teacher Aide Suggestions

____Team Teaching Suggestions

____Telephone Uses

____Television

- Broadcast
- Closed Circuit

____ Tests

____Textbooks

____Toys

____Transparencies

____Typewriter Uses

___Workbooks

EXHIBIT 39b
SAMPLE RELATIONSHIPS OF LEARNING OBJECTIVES AND ENVIRONMENTAL EDUCATION COMPONENTS

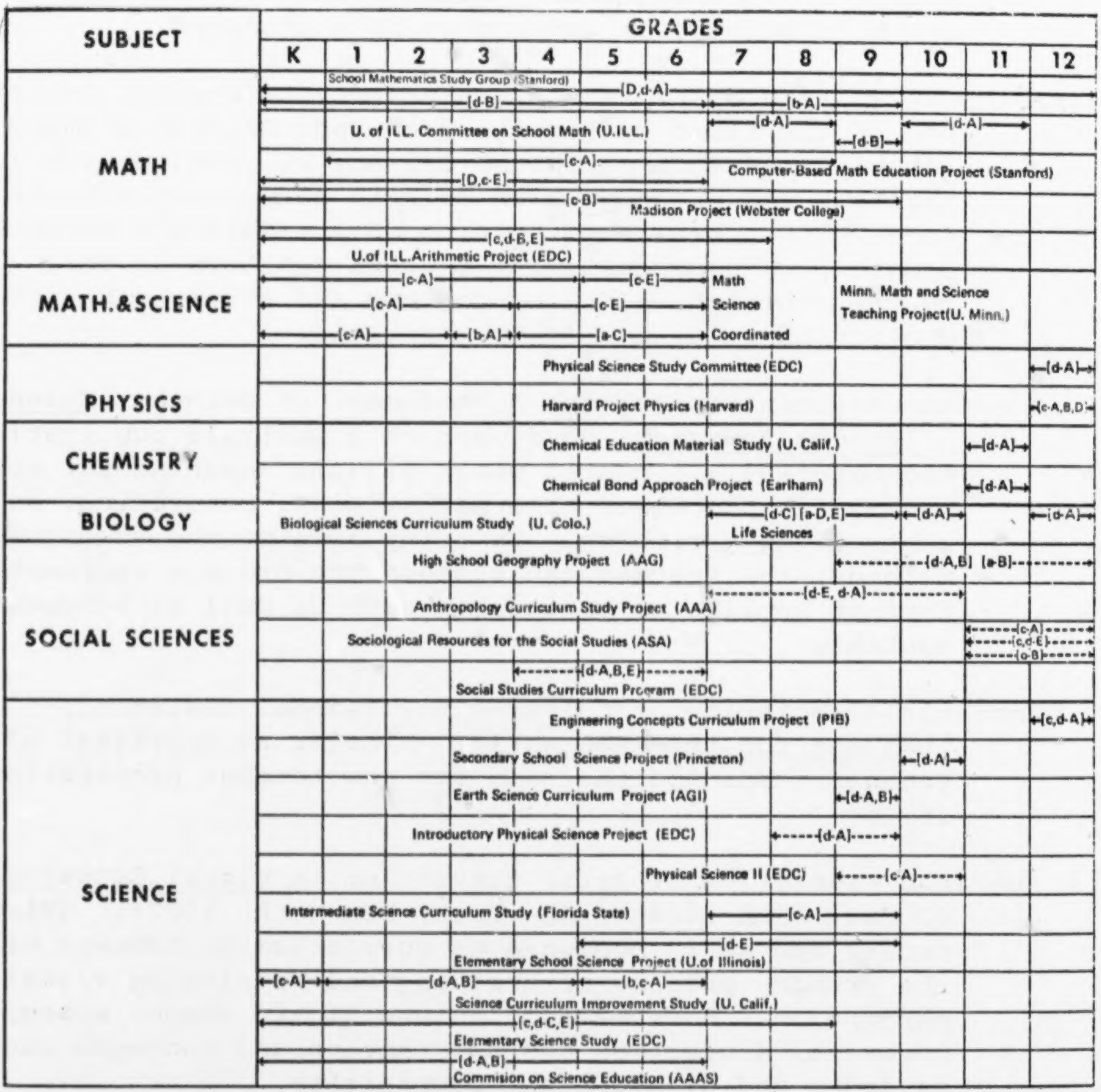
LEARNING OBJECTIVES

Factual Information	Visual Identification	Principles Concepts and Rules	Procedures	Performing Skilled Perceptual Motor Acts	Developing Desirable Attitudes Opinions and Motivations	LEARNING VEHICLES
						Still Pictures
						Motion Pictures
						Television
						3-D Objects
						Audio Recordings
						Programmed Instruction
						Demonstration
						Printed Text Books
						Oral Presentation

From NDEA Project 5-16-027

EXHIBIT 39c

PRINCIPAL CURRICULUM STUDY GROUPS PRE-COLLEGE EDUCATION IN SCIENCE



9/69

KEY TO SYMBOLS:

——— Complete Curriculum, Suggested Grade Levels
------ Units or Courses, Suggested Grade Range

a. Planned or projected
b. Preliminary version
c. Extended trial version
d. Released for general use

A. Text and Supplementary Materials
B. Teacher Training Films and Course Materials
C. Guidelines for Curriculum & Course Development
D. Research in Learning
E. Unsequenced Units and Source Materials

PIB	Polytechnic Institute of Brooklyn
EDC	Education Development Center
AAG	American Association of Geographers
AAA	American Anthropological Association
ASA	American Sociological Association
AGI	American Geological Institute
AAAS	American Association for the Advancement of Science

EXHIBIT 39d

USEFUL ENVIRONMENTAL EDUCATION PROGRAMS, MATERIALS, REFERENCES

Abt Associates, Inc., 55 Wheeler Street, Cambridge, Mass: Creation of books, booklets and other materials for simulation techniques. Pollution and Neighborhood are both simulation games they have produced.

Althouse College of Education, University of Western Ontario: One of the first centers to draw upon British primary school experience, Althouse College is working with teachers and principals in Ontario elementary schools to develop a broadened version of the Nuffield science program. The program will benefit teachers in this country through exchange programs and through the production of films and other materials.

American Association for the Advancement of Science, Science: A Process Approach; developer of a multiple publication and material K-6 course which directs teaching for such scientific processes as hypothesizing, predicting, and controlling variables. By using some of the suggested methods, the teacher can broaden the process approach so that it applies to personal growth as well as scientific content.

American Association of Colleges for Teacher Education, Teachers for the Real World: A major re-appraisal of teacher needs and the need for new teacher preparation styles.

American Federation of Arts, Curriculum in Visual Education, 41 East 65th Street, New York, New York 10021. (Elementary and up): Designed as curriculum enrichment with the primary purpose of training and developing visual perception. Phenomena of color, light, shape, space, movement, distortion and abstraction and concepts such as order and disorder and composition.

Anthropology Curriculum Project, A Sequential Curriculum for Anthropology for Grades 1 - 7, University of Georgia Athens, Georgia: Introduces the anthropologist's approach to the basic questions about man.

Bessell, Harold and Uvalo Palomares, Methods in Human Development, Human Development Training Institute, 4455 Twain Avenue, San Diego, California, 1967: A program to develop group experiences for elementary school students for self-confidence, a sense of mastery and skills to help each other.

Big Rock Candy Mountain, 1115 Merrill Street, Menlo Park, California. A catalog containing sources and reviews of educational materials, ideas, and environments related to personal growth and process education.

Brooks, Charlotte and Lawana Trout, The Impact Series, Holt, New York, 1968: A series of books dealing with personal concerns of high school students, with particular emphasis on city populations.

Brown, George, Now: The Human Dimension, Esalen Publications, Big Sur, California, 1968: A report on a training program for teachers which combined cognitive and affective learning to create "humanistic education." Janet Lederman's Anger and the Rocking Chair, McGraw-Hill, New York, 1969, describes in a prose poem how one of the program's teachers used gestalt awareness with children. All levels.

Burgess, Bonita, A Bibliography for a Human Development Curriculum, Intensive Learning Center and Office of Affective Development, Philadelphia Public Schools, Intensive Learning Center, 15th and Luzerne Streets, Philadelphia, Pennsylvania: Extensive information on both adult and children's materials for developing the human potential of elementary children. Sources for instructional materials are listed. Emphasis is placed on intergroup relations.

Burgess, Bonita, A Working Bibliography on Games, Intensive Learning Center and Office of Affective Development, Philadelphia Public Schools, Intensive Learning Center, 15th and Luzerne Streets, Philadelphia, Pennsylvania: Describes games, sources of games and background discussions on how games may be used to teach thinking processes.

Burgess, David Lowry, "Fragments: A Way of Seeing, A Way of Seeking," Murray Road School, Newton, Massachusetts:

This program is concerned with the boundaries of experience. Project cards are used not as lesson plans, but as "permissive, provocative and stimulating" starting points.

CEMREL (Central Midwestern Regional Education Laboratory) Guidelines for Curriculum Development for Aesthetic Education, developed in 1967. Includes a handbook, a Thesaurus of possible activities that might be included for aesthetic education, a curriculum developer's workbook, a set of concept cards, a set of activity cards, and models of learning packages. Available through Public Information Officer, CEMREL, 10646 St. Charles Rk. Road, St. Ann, Missouri, 63074.

Children & Their Primary Schools, commonly called the Plowden Report. This book is one of the best philosophical/research treatments for the humanistic personalization of education. Available through any English book dealer or the British Information Services.

Dunstan & Garlan, Worlds in the Making, Prentice Hall. The best idea book so far for use with students in an exploration of futurology.

Children's Museum, Boston: Developer of small kits useful for elementary schools, many of which have direct application to developing environmental awareness.

Clarke, David, "Architecture Affects People Just Out of the Focus of Awareness," was a unit given in 1969 at the University of Oregon. For concepts and attitudes, not skills, it is directed at sensitizing teachers to the environment. Information can be obtained from Mr. Clarke, Apartment 1-A, 300 8th Avenue, Brooklyn, New York 11215.

Covington, Martin, et al., The Productive Thinking Program, Educational Innovation, Inc., Box 9248, Berkeley, California: A course using programmed learning in comic book detective mysteries to teach problem solving processes, or "master-thinking skills."

Curriculum Lab, Charles W. Rusch: An unpublished outline of exercises, verbal games, sensory motor games directed at increasing the child's facility to visualize and to see whether children can be taught to think visually.

Available through C.W. Rusch, Department of Agriculture, University of California, Los Angeles, California.

Dieges, Jon, Design of Alternate Futures, c/o University of California, 2700 Bancroft Way, Berkeley, California 94704: Work sheets and a course diary, inspired by R. Buckminster Fuller.

Educational Development Center, Man, A Course of Study, 15 Mifflin Place, Cambridge, Massachusetts, 1968: An elaborate course based on the question, "What is human about human beings?" Contrasts life in America with the lives of animals and of Eskimos. Includes documentary movies shot on locale, artifacts, teacher guides, etc.

Florida State University, Probing the Natural World, Silver Burdett: A rather good project/experiment series for the junior high and high school ecology or environment course.

Gordon, S. and J. Wyman, Primer of Perception, Reinholt: Attempts to teach visual awareness through the use of photographs.

Graduate School of Design, Harvard University, Visual Education for Non-Professionals: A university level course in which non-professional students are introduced to aspects of visual disciplines in order to develop their capabilities for evaluating visual problems.

Group for Environmental Education, Our Manmade Environment: Book Seven: A collection of manipulative activities promoting sensitivity to environmental constants.

Harris, Robert, "Can Man Survive?" University of Oregon: Course is interdisciplinary and deals with ecological and environmental problems. For information, contact Dean Harris, College of Architecture and Allied Arts, University of Oregon, Eugene, Oregon.

Hatch, C. Richard, "Kit of Multi-Media Materials," Ginn & Company, Boston, Massachusetts, 02117: Includes filmstrips, records, planning information cards, teachers' manual course planning guide, community planning handbook, student workbook with maps, diagrams, games,

exercises and interview forms. This is a detailed social studies curriculum written with the assumption that people can learn to understand their environment and to change it.

High School Geography Project (Boulder, Colorado), "Varied Institutions and Technologies of Societies Around the Earth," The MacMillan Company, School Department, 855 Third Avenue, New York, New York 10022: This high school geography course is comprised of six units (which may also be used separately) in history, economics and government courses. Each unit contains a complete package of tapes, slides, a variety of readings, maps, games and other materials; supplementary reference volumes on geography, maps and air photos; and teacher education materials.

International Bureau of Education, Geneva (UNESCO), The Study of Environment in School: This is the report of the 31st session of the International Conference on Public Education. It presents a brief overview of what approximately 80 different countries are doing in schools for the study of environment.

International Center for Educational Development: The center, a teacher advisory service to public schools in the greater Los Angeles metropolitan area, is seeking to exploit the opportunities for environmental education in experimental classrooms.

James, Charity, Young Lives at Stake; (An English publication): A major contribution towards re-appraisal of secondary schools and their style of operation.

Lippet, Ronald, Robert Fox and Lucille Schaible, Social Science Laboratory Units, Science Research Associates, Inc. 259 East Erie Street, Chicago, Illinois, 1969: Teachers' guide, resource book, records, and student materials for an experiential and intellectual look at human behavior as seen through the eyes of a social scientist.

Linn, Dr. Karl, Multi-sensory Media for Learning, was actually part of a lecture series held in spring, 1969, included a talk and "happening" by Dr. Linn, on "Education of, by and for the Environment," during which the environment of the hall in which he was speaking was transformed with materials to make its space more inviting.

Lieberman, Kenneth, "Model City Project": This junior high school program was designed to "teach students the basic elements of problem solving in the context of their own environment." Available from Mr. Lieberman, The Model City Project, The School District of Philadelphia, Philadelphia, Pennsylvania.

Kaiser Aluminum NEWS, Kaiser Center 866, Oakland, California. An excellent series of thought and idea pieces on a wide variety of subjects. Topics selected by Don Fabun (the editor) include The Corporation as a Creative Environment, Communications and Ecology.

Jaynes, Ruth and Barbara Woodbridge, Bowman Early Childhood Series, Bowman Publishing Company, Glendale, California, 1969: A series of picture stories, story books and recordings designed to develop positive self-identity, awareness of self as a person, motor-perceptual skills and ability to relate to others.

Mantua-Powelton Mini-School, "Mimeographed course outline and neighborhood questionnaire," 3302 Arch Street, Philadelphia, Pennsylvania: A nine week course in which children experience the city visually and functionally; inventory neighborhoods and build model neighborhoods.

Moffet, James, A Student-centered Language Arts Curriculum, Vol. 1 (grades K-6) and Vol. 2 (grades K-13) and Teaching the Universe of Discourse, Houghton Mifflin, Boston, 1968: A comprehensive English program centered around the students themselves and the kind of discourse--drama and speech--with which they are most familiar. Specific lesson plans and exercises are given.

Moholy-Nagy, Claudia, Perceptual Awareness: A deliberately loosely structured, exploratory perceptual awareness project being designed as a classroom tool for alteration or extention by the teacher. Conceived as material for severely limited budgets, space and "teacher" time. To grow more sophisticated for the older child, to include evaluation and judgement. Information can be obtained from Claudia Moholy-Nagy, Director, Victor Gruen Foundation for Environmental Planning, 315 North Beverly Glen Boulevard, Los Angeles, California 90024.

Muessig, Robert, Discussion Pictures for Beginning Social Studies, Harper and Row, New York, 1967: Ninety large pictures on such basic human themes as the unity and diversity of man and man's search for security. Primary level, but useful in many contexts.

Museum of Modern Art, Information: A visual presentation of a broad range of the possibilities for information display. Exciting ideas in themselves which can be translated into curriculum materials.

National Audubon Society: To find ways of relating the educational programming at its five nature centers more closely to the needs of classroom teachers, the Society is conducting workshops in cooperation with the Educational Development Center in Newton, Massachusetts, and the Bank Street College of Education in New York for its nature center education staff and public school teachers and administrators. The objectives are to make the centers a more vital educational resource, to develop working relationships with local school systems, and to devise new approaches to elementary school science education.

National Park Service, U.S. Department of the Interior, National Environmental Study Area Guide: An excellent idea source using any area as an environmental study laboratory. Open design, it encourages maximum personalization by both the teacher and the student.

NEED, program developed "to foster an appreciative and critical awareness of the intersections of natural and social processes." NEED, National Park Service, U.S. Department of the Interior, Washington, D.C. 20240.

Newberg, Norman and Terry Borton, Education for Student Concerns, Office of Affective Development, Philadelphia Board of Education, 21st and the Parkway, Philadelphia, Pennsylvania: Process courses in communications and urban affairs. High school level.

New York State Department of Education: A program integrating cultural studies with other subjects in the regular ninth grade curriculum requiring no actual changes in curriculum and no additions of personnel. Includes teacher guides for enriching the study program of English, science, industrial arts and home economics. Available through Grace N. Lacy, Director of CUE, The University of the State of New York, the State Department of Education, Albany, New York.

Randolph, Norma and William Howe, Self-enhancing Education: A Program to Motivate Learners, Stanford, California: A book of specific procedures for teaching kids to learn more about how to control themselves, direct their own learning, and create their own selves. Directed toward teachers dealing with elementary students. Based on programs developed in Cupertino, California.

Raths, Louis, Merrill Harmin and Sidney Simon, Values and Teaching, Charles E. Merrill Books, Inc., Columbus, Ohio, 1966: A concrete approach to the teaching of value clarification, including many exercises suitable for any level.

Ritter, Paul, Educreation, Pergamom: This book is an excellent philosophical and idea book about education and creation growth and change.

Rowland, Kurt, Looking & Seeing Series, Ginn: An excellent source book of ideas for either teachers or their students.

Science Research Associates, Inc., Our Working World Social Studies Series (Families at Work, Neighbors at Work, Cities at Work): Outstanding social studies course which aims to help the student discover the relationship between experience or events and ideas so that discovery becomes a part of continuing life experience. The material partially emphasizes environmental awareness and lends itself very readily to slide shows, field trips and other supplementary activities.

Shaftel, Fannie and George Shaftel, Words and Actions: Role-playing Photo-problems for Young Children, Holt, New York, 1967: Uses roleplays centered around such problems as spilled groceries, disagreement with parent on shoe styles, fight over blocks, etc. to teach young children to recognize and deal with their feelings. One set of pictures raises problems common in entering a new school situation. Urban emphasis.

Silver Burdett Company, Concern: A Discussion Series: A good series to aid in value education. Each booklet treats one area of concern, such as: Freedom, the generation gap, communication, violence, destiny; other topics are being added from time to time.

Stone, Susan C. and Frances D. Quinn, Where I Live is Important to Me--the Visual Aspects of Building Better Communities, 811 W. Daniel Street, Champaign, Illinois 61820: This is a primer for environmental awareness which helps "provide children with an awareness of the opportunities, choices and consequences in building better communities and in building communities better." Inspired by Charles Rusch, Professor of Architecture, University of Illinois, this course deals with upper elementary students.

Straus, David, et al., Tools for Change, Interaction Associates, 2637 Rose Street, Berkeley, California: A course outline for a program which explicitly teaches problem-solving processes through the use of games and puzzles, all levels.

Synetics, Inc., Making It Strange, Harper & Row, New York, 1968: A four-book series designed to teach children to be more creative. The books also lend themselves well to an exploration of the inner life out of which creativity springs.

Tannen, Robert, I Know a Place, City Schools Curriculum Service, Inc., 60 Commercial Wharf, Boston: A series of booklets provide open questions and the opportunity for children to help write their own book as they explore their relation to their environment. Elementary level.

The Whole Earth Catalog, Portola Institute, 558 Santa Cruz Avenue, Menlo Park, California: The Catalog is a wish-book for lifestyle alternatives and for the acquisition of the necessary resources.

University of California (Berkeley): "Environmental Education Today for the Future." A course for teachers, designed to present the problems and issues stemming from man's interaction with his natural environment. Teaching methods and student activities at the elementary school level that will aid in developing appreciation of the interrelationships of man and his environment. Information may be obtained from Arnold Pagano, Supervisor, Teacher Education, University of California, Berkeley, California.

Visual Education Consultants, "Our Community, Madison, Wisconsin," Visual Education Consultants, P.O. Box 52, Madison, Wisconsin 53701: This elementary and junior high program is geared toward informing students of their background, development and programs which give their community its particular character and cultural aspect. Environmental science, history, cultural arts, vocational counseling, geography, and government are emphasized. Utilizes filmstrips and guides.

Wave Hill Center for Environmental Studies (New York), In cooperation with the Herbert H. Lehman College, a branch of the City University of New York, the center is seeking to introduce the physical environment into the regular curriculum to stimulate the intellectual curiosity and growth of students. The project trains teachers by involving them in the preparation of work units that build on the experience gained by the students in investigating the environment.

Wight, A., Cross Cultural Training: A Handbook, Center for Research and Education, P.O. Box 1768, Estes Park, Colo., 1969: Though it focuses on the training of Peach Corps Volunteers, this book contains a number of lesson outlines which can easily be adapted for school use, particularly in a cross-cultural or integrated setting.

Wilson, Forrest, Architecture: A Book of Projects, Reinholt: Book of projects involving structural principles, symmetry, scale and space. Extremely good as an idea source for classroom teachers.

World Resources Inventory, World Design Science Decade, 1965-1975, A series of six books. This series is from R. Buckminster Fuller's group and offers a compendium of hardfact and fullerizing.

EXHIBIT 39e

SOME SURVEY SOURCES

A.I.A.-COPE, This group created an imaginative source book of references treating most aspects of environmental education though it is rather heavy on design approaches.

ERIC - (Educational Resources Information Center) - The ERIC Clearinghouse centers assemble materials on research and educational projects in specific areas. These are then available in microfiche or hard copy through the ERIC Document Reporduction Service, The National Cash Register Company, 4936 Fairmont Avenue, Bethesda, Maryland, 20014.

National Park Service, "Evaluation of National Environmental Education Development Program," completed by the National Education Association under contract.

National Science Teachers Association - Programs in Environmental Education, 1970, NSTA, 1601 16th Street, N.W., Washington, D.C.

PACE - (Projects to Advance Creativity in Education), Title III, Supplementary Centers and Services Program, Elementary and Secondary Education Act of 1965, Description of the projects funded under Title II are included in bibliographies issued by the Office of Education under titles such as PACE Outdoor Education Projects, and PACE Marine and Oceanography Projects and by the Government Printing Office under the title, Pacesetters in Innovation. Order from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C.20402.

PBEC -"PBEC Exhibit Index" November, 1970, a collection of surveys, information services, advisory bodies, target audience characterization studies, environmental education reports and environmental action reports.

U.S.O.E. - Office of Environmental Education - They have compiled a working copy of a survey of environmental education across the United States. A copy is available for reference at the Offices of the Regional Area Commissioners.

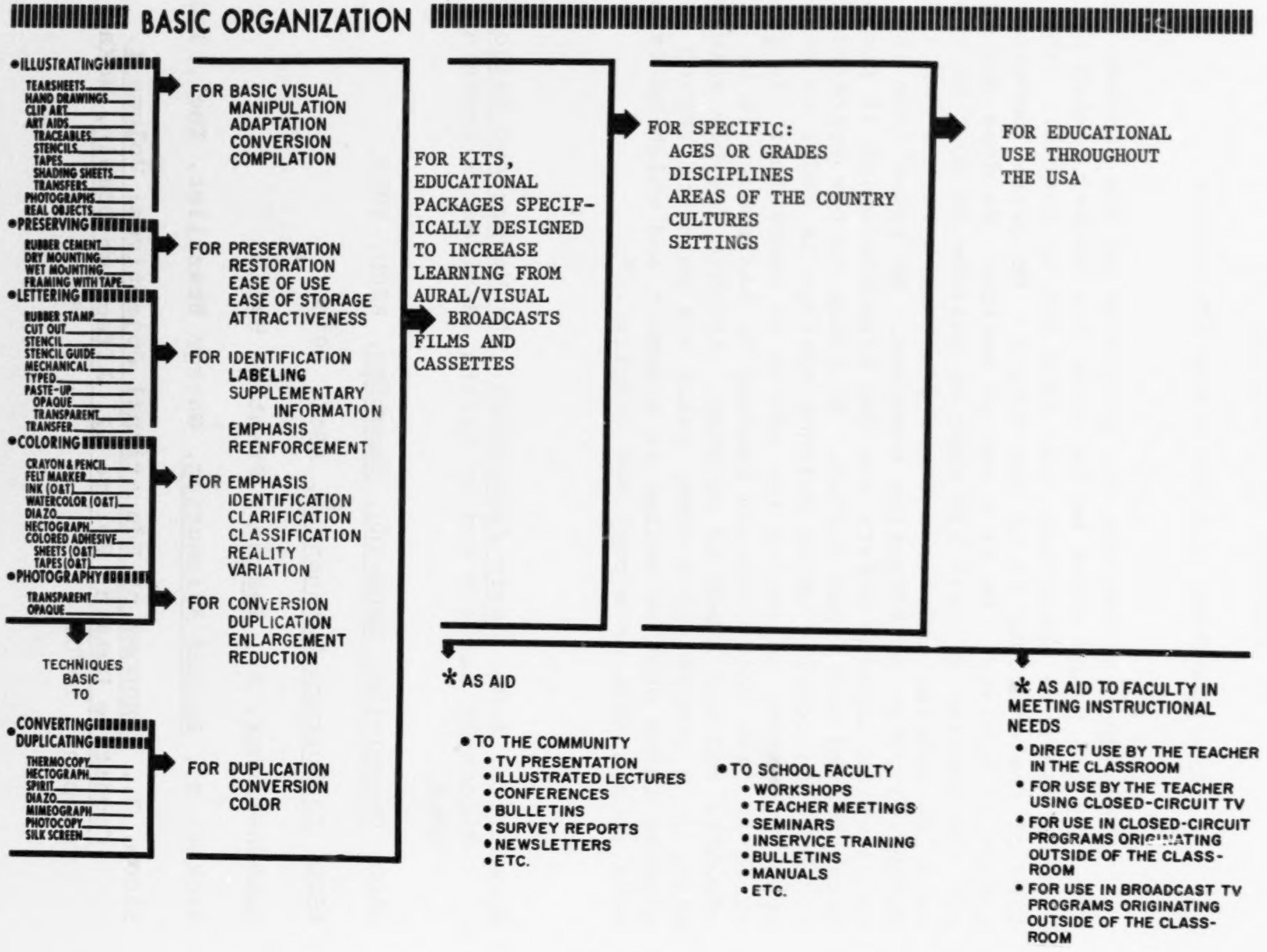

BASIC ORGANIZATION
•ILLUSTRATING
TEARSHEETS
HAND DRAWINGS
CLIP ART
ART AIDS
TRACEABLES
STENCILS
TAPES
SHADING SHEETS
TRANSFERS
PHOTOGRAPHS
REAL OBJECTS
•PRESERVING
RUBBER CEMENT
DRY MOUNTING
WET MOUNTING
FRAMING WITH TAPE
•LETTERING
RUBBER STAMP
CUT OUT
STENCIL
STENCIL GUIDE
MECHANICAL
TYPED
PASTE-UP
OPAQUE
TRANSPARENT
TRANSFER
•COLORING
CRAYON & PENCIL
FELT MARKER
INK (O&T)
WATERCOLOR (O&T)
DIAZO
HECTOGRAPH
COLORED ADHESIVE
SHEETS (O&T)
TAPES (O&T)
•PHOTOGRAPHY
TRANSPARENT
OPAQUE
TECHNIQUES BASIC TO
•CONVERTING
•DUPLICATING
THERMOCOPY
HECTOGRAPH
SPIRIT
DIAZO
MIMEOGRAPH
PHOTOCOPY
SILK SCREEN
FOR BASIC VISUAL MANIPULATION ADAPTATION CONVERSION COMPILATION
FOR PRESERVATION RESTORATION EASE OF USE EASE OF STORAGE ATTRACTIVENESS
FOR IDENTIFICATION LABELING SUPPLEMENTARY INFORMATION EMPHASIS REENFORCEMENT
FOR EMPHASIS IDENTIFICATION CLARIFICATION CLASSIFICATION REALITY VARIATION
FOR CONVERSION DUPLICATION ENLARGEMENT REDUCTION
FOR DUPLICATION CONVERSION COLOR
FOR KITS, EDUCATIONAL PACKAGES SPECIFICALLY DESIGNED TO INCREASE LEARNING FROM AURAL/VISUAL BROADCASTS FILMS AND CASSETTES
FOR SPECIFIC: AGES OR GRADES DISCIPLINES AREAS OF THE COUNTRY CULTURES SETTINGS
FOR EDUCATIONAL USE THROUGHOUT THE USA
* AS AID
•TO THE COMMUNITY
•TV PRESENTATION
•ILLUSTRATED LECTURES
•CONFERENCES
•BULLETINS
•SURVEY REPORTS
•NEWSLETTERS
•ETC.
•TO SCHOOL FACULTY
•WORKSHOPS
•TEACHER MEETINGS
•SEMINARS
•INSERVICE TRAINING
•BULLETINS
•MANUALS
•ETC.
* AS AID TO FACULTY IN MEETING INSTRUCTIONAL NEEDS
•DIRECT USE BY THE TEACHER IN THE CLASSROOM
•FOR USE BY THE TEACHER USING CLOSED-CIRCUIT TV
•FOR USE IN CLOSED-CIRCUIT PROGRAMS ORIGINATING OUTSIDE OF THE CLASSROOM
•FOR USE IN BROADCAST TV PROGRAMS ORIGINATING OUTSIDE OF THE CLASSROOM

EXHIBIT 39f

EXHIBIT 39g

AN OVERVIEW BIBLIOGRAPHY FOR ENVIRONMENTAL EDUCATION FOR THE FUTURE

"The educator has not the prejudice of the scholar who stops at the point where he believes his tools, tested by a life of cautious successes, can take nim no further. The life of the educator is of the future. He lives tomorrow before it arrives. He is a man of action. He does not wait for the scholar to tell him what to believe or do. He outruns the scholar and forms a new generation in his own life, which will only be effective tomorrow. He takes from the trays which science offers him the elements which it keeps separate and sees them united. He makes no new synthesis, he sees the reality which science divides in order to analyze it better, following the advice of Descartes. He refuses to make this division because he has chosen to be an educator and not a man of science, because for him science will, in a generation's time, reach the point of saying in precise terms what he seized in a moment and which he transmits in his role as a poet and inspirer."*

Abramovitz, A.B., Basic Prevention: Its Nature and Value, Wisconsin State Board of Health, Madison, Wisconsin, 1965.

ASCD, Perceiving, Behaving, Becoming, ASCD, 1952.

ASCD, To Nurture Humaneness, ASCD, 1970

Ashton-Warner, S., Teacher, Prentice Hall.

Becker, E., Beyond Alienation, George Braziller, Inc., 1967.

Bloom, B., Taxonomy of Educational Objectives: Volume I, Cognitive Domain; Volume II, Affective Domain, McKay Company, 1970.

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*Gattegno, C., The Adolescent and His Self, Lamport, Gilbert and Co., Ltd., Reading, England, 1963.

Britton, J., "The Role of Language in Learning in the Elementary School," Reason and Change in Elementary Education, University of Nebraska, Tri-University Project, 1968.

Bruner, J. (ed.), Learning about Learning: A Conference Report, Department of Health, Education and Welfare, U.S. Government Printing Office, 1966.

Buchsbaum, R. & M., Basic Ecology, Boxwood Press, 1967.

Calder, N., Technopolis, Simon and Schuster, 1969.

Caldwell, Lynton K., Environment, Natural History Press,1970.

Cantor, H., Dynamics of Learning, H. Stewart.

Carnegie Commission on Educational Television, Public Television: A Program for Action, Bantam, 1967.

Categno, C., Towards a Visual Culture, Outerbridge and Drenstfrey, 1970.

Council on Environmental Quality, Environmental Quality, U.S. Government Printing Office, 1970.

Counts, G.S., Dare the Schools Build a New Social Order?, John Day Company, 1932.

Dennison, G., The Lives of Children, Random House.

Dexter, L., The Tyranny of Schooling, Basic Books.

Dewey, J., How We Think, Houghton Mifflin.

Dreikurs, R., Psychology in the Classroom.

Drucker, P., The Age of Discontinuity, Harper & Row, 1968.

Dubos, R., So Human an Animal, Scribner, 1968.

Duckworth, E., "The Child's Eye View of Knowing," Reason and Change in Elementary Education, Olson, P.A. (ed.), University of Nebraska, Tri-University Project, 1968.

Dunstan, M. & P. Garlan, Worlds in the Making, Prentice Hall, 1970.

Editors of Fortune, The Environment, Harper & Row, 1969.

Environmental Education Planning Group, Environmental Education: Planning for the Future of Man, U.S. Office of Education, 1970.

Ewald, W. Jr., Environment for Man, Environment and Change, Environment and Policy, Indiana University Press, 1970.

Fabun, D., Dynamics of Change, Prentice-Hall.

Fantini, M.D. and G. Weinstein, Toward a Contact Curriculum, B'nai Brith, 1968.

Farber, J., "The Student as Nigger," This Magazine is about Schools, Vol. I, Issue 5, 1968.

Featherstone, J., The Primary School Revolution in Britain, Reprint of three reports, New Republic, 1967.

Featherstone, J., "Report Analysis: Children and Their Primary Schools," Harvard Education Review, Vol. 38, #2, Spring, 1968.

Flechtheim, O., History and Futurology, Verlag Anton Hain, 1966.

Friedenberg, E., Coming of Age in America

Fromm, E., Escape from Freedom

Fuller, B., Education Automation, Southern Illinois University Press, 1963.

Gardner, J.W., No Easy Victories, Harper & Row, 1968.

Gibb, J.R., "Is Help Helpful?" Forum, February, 1964.

Glasser, W., Schools without Failure.

Goffman, E., Strategic Interaction, University of Pennsylvania Press, 1966.

Goodman, P., Growing Up Absurd

Gordon, G., Classroom Television, Hastings House.

Gross, R., Radical School Reform, Simon and Schuster.

Halprin, L., Creative Processes in the Human Environment, George Braziller.

Hampden-Turner, C., Radical Man, Schenkman.

Henry, J., Culture Against Man

Hentoff, N., Our Children are Dying, Viking.

Herndon, James, The Way It S'pozed to Be, Simon and Schuster, 1968.

Hickerson, N., Education for Alienation, Prentice-Hall, 1966.

Holt, J., How Children Fail, Pitman.

Holt, J., "School Style: Pictures of Places Where Young Children Can Learn," The Craft of Teaching and the Schooling of Teachers, First National Conference of the Tri-University Project, September, 1967.

Horney, K., Neurosis and Human Growth, Norton.

How Can Our Physical Environment Best Be Controlled and Developed?, U.S. Government Printing Office.

Hunt, J. McV., "Conceptions of Learning with Implications for Styles of Teaching Young Children," The Craft of Teaching and the Schooling of Teachers, First National Conference of the Tri-University Project, September, 1967.

International Conference on Public Education, The Study of Environment in School, International Bureau of Education.

James, C., Young Lives at Stake, Collins, 1968.

Jones, D., Fantasy and Feeling in Education, Citadel.

Jourard, S., Disclosing Man to Himself, Van Nostrand.

Kelly, E., Education for What is Real, Harper & Row.

Kelly, E., Education and the Nature of Man, Harper & Row, 1952.

Kohl, H., "Children and the Language of Schools: Styles and Forms," The Craft of Teaching and the Schooling of Teachers, First National Conference of the Tri-University Project, September, 1967.

Kohl, H., The Open Classroom, Vintage.

Krishnamurti, J., Education and the Significance of Life, Harper & Row.

Laing, R.D., Knots, Tavistoch, 1970.

Laing, R.D., The Politics of Experience, Tavistoch, 1967.

Lemert, E.M., "Juvenile Justice - Quest and Reality," Transaction, July, August, 1967.

Leonard, G.D., Education and Ecstasy, Delacorte Press, 1968.

Maslow, A., Eupsychian Management, Irwin Dorsey.

Maslow, A., Towards a Psychology of Being, Van Nostrand.

May, R., Love and Will, Norton.

McClelland, D.C., The Achieving Society, Free Press.

McHale, The Future of the Future, Braziller.

McHarg, I., Design with Nature, National History Press.

Moustakas, C., Creativity and Conformity, Van Nostrand.

Nash, P., Models of Man, Wiley.

National Goals Research Staff, Toward Balanced Growth: Quantity with Quality, U.S. Government Printing Office, 1970.

Nickerson, Education for Alienation

Oettinger,A., Run Computer Run, Harvard Press, 1970.

Plowden Committee, Children and Their Primary Schools, H.M.S.O., 1967.

Polanyi, M., The Tacit Dimension, Doubleday.

Postman, N., Teaching as a Subversive Activity, Delacorte.

Randolph, N. and W.Howe, Self Enhancing Education, Stanford Press, 1966.

Reger, R., "Concepts in Special Education," Education, 1967.

Reynolds, W.C., "A Profession in a Hurry: The Need for Standards," Exceptional Child, 1966, 33.

Richardson, E., In the Early World

Ritter, P., Educreation, Pergamom, 1966.

Rogers, C., On Becoming a Person

Rogers, C., Coming into Existence

Rosenthal, R. and L. Jacobson, Pygmalion in the Classroom, Holt, Rinehart and Winston, 1968. Also reported in "Teacher Expectations for the Disadvantaged," Scientific American, April 1968.

Rubin, T., The Winner's Notebook, Pocket Books.

Schrag, P., Village School Downtown, Beacon Press, 1968.

Schrag, P., Voices in the Classroom, Beacon Press.

Schueler, H., and G. Lesser, Teacher Education and the New Media, The American Association of Colleges for Teacher Education.

Schramm, W. and G. Chu, Learning from Television, NAEB, 1967.

Schramm, W., Mass Media and National Development, Stanford University Press, 1964.

Schramm, W., et al., Television in the Lives of Our Children, Stanford University Press, 1961.

Select Sub-Committee on Education, Environmental Quality Education Act Hearings, U.S. Government Printing Office.

Shephard, P. and D. McKinley, The Subversive Science, Houghton Mifflin, 1969.

Silberman, C., Crisis in the Classroom, Random House, 1970.

Smith, B., S.Cohen and A. Pearl, Teachers for the Real World, American Association of Colleges for Teacher Education.

Theobald, R., An Alternative Future for America, Swallow Press, 1969.

Teilhard de Chardin, P., The Future of Man, Harper & Row, 1964.

Tri-University Project, The Craft of Teaching and the Schooling of Teachers, U.S. Office of Education.

U.S. Office of Education, Education that Cannot Wait, unpublished paper.

Wilson, C., Beyond the Outsider

Yeomans, E., Education for Initiative and Responsibility, National Association of Independent Schools, 1968.

Zacharias, J.R.,"A Portmanteau Proposal," Reason and Change In Elementary Education, Olson, P.A. (Ed.), University of Nebraska, Tri-University Project, 1968.

EXHIBIT 39h

Estimates of Educational Television Audiences, 1965, 1966*

TABLE 1

ESTIMATES OF ETV AUDIENCE, OCTOBER 1966

(A. C. Nielsen Company)

U.S. total homes	58,243,800
U.S. television homes	54,921,970
Number of homes tuning to one or more ETV stations in average week	6,860,000 [a]
Percent of homes tuning to one or more ETV stations in average week	12.5 percent
Average hours of viewing of ETV per home per week	1.2 hours/week
Number of hours of viewing of ETV stations per week	8,240,000

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[a] Assuming 2.4 viewers per viewing home, the total number of persons reached by all ETV stations in a week exceeds 16,000,000.

TABLE 2

ESTIMATES OF ETV AUDIENCE, 1965

(American Research Bureau)

U.S. total homes	57,810,700
U.S. television homes	54,456,300
Net weekly circulation of ETV stations (homes)	4,883,900
ETV share of net weekly circulation	9.0 percent
Total hours spent viewing ETV stations	6,771,600
Average family who watches ETV at least once per week views ETV	1.4 hours/week

*Carnegie Commission on Educational Television, Public Television: A Program for Action, Harper and Rowe, 1967.

TABLE 3

LARGEST 30 EDUCATIONAL TELEVISION STATIONS BY NET WEEKLY AND AVERAGE DAILY CIRCULATION, MARCH 1966

(American Research Bureau)

Television Market	**Call Letters**	**Net Weekly Homes**	**Circulation[a] Rank**	**Ave. Daily Homes**	**Circulation[b] Rank**
New York	WNDT	1,855,700	1	496,000	1
Boston	WGBH	335,800	2	74,100	2
San Francisco	KQED	290,800	3	70,500	3
Chicago	WTTW	277,300	4	57,100	7
Wilmington–Philadelphia	WHYY	274,400	5	65,700	5
Los Angeles	KCET	202,200	6	61,500	6
Pittsburgh	WQED	260,400	7	65,800	4
Milwaukee	WMVS	117,300	8	29,500	8
Miami	WTHS	109,800	9	26,300	9
Denver	KRMA	98,500	10	24,500	10
St. Louis	KETC	91,300	11	17,300	12
Seattle	KCTS	83,800	12	20,100	11
Houston	KUHT	67,400	13	13,700	18
Portland, Oregon	KOAP	66,000	14	15,400	13
Hartford	WEDH	61,200	15	14,500	16
Sacramento	KVIE	58,800	16	14,900	15
Tampa–St. Petersburg	WEDU	54,900	17	14,200	17
Washington, D.C.	WETA	53,200	18	15,000	14
Minneapolis–St. Paul	KTCA	52,600	19	10,700	21
Athens, Ga.	WGTV	46,900	20	11,300	20
San Antonio–Austin	KLRN	46,900	21	11,500	19
Salt Lake City	KUED	39,400	22	8,200	24
New Orleans	WYES	39,300	23	8,000	25
Lincoln	KUON	36,800	24	9,000	23
Chapel Hill	WUNC	34,900	25	7,900	26
Detroit	WTVS	34,800	26	7,700	27
Dallas	KERA	34,800	27	7,500	28
Albuquerque	KNME	31,700	28	9,400	22
Durham	WENH	26,700	29	5,800	30
Memphis	WKNO	26,700	30	5,700	29

[a] NET Weekly Circulation—The estimated number of different television homes viewing a particular station at least once per week, Monday-Sunday, 6:00 a.m.–2:00 a.m., EST. ARB circulation data comes directly from recorded evidence of viewing in ARB diaries.

[b] Average Daily Circulation—The estimated average number of different television homes reached by a particular station on each day of the week, Monday-Sunday, 6:00 a.m.–2:00 a.m., EST.

TABLE 4

COMPOSITION OF ETV AUDIENCE

(Institute for Communication Research, Stanford University)

Proportions of the WQED, Pittsburgh, and WGBH, Boston, monthly audience representing different educational and occupational groups, March 1966.

Education	Pittsburgh	Boston
8th grade or less	5.8%	3.4%
Some high school	11.3%	6.4%
Completed high school	33.1%	40.4%
Some college	16.5%	18.8%
Completed college	21.4%	21.5%
Study beyond A.B.	11.9%	9.5%

(Interview base, 2,051)

Occupation	Pittsburgh	Boston
Professional	17.2%	14.6%
Business, gov't.	22.3%	24.0%
Clerical	10.7%	10.9%
Technicians, skilled labor	16.2%	19.6%
Unskilled labor	20.9%	11.9%
Students	1.0%	4.4%
Housewives	1.8%	5.9%
Retired	9.9%	8.7%

(Interview base, 2,003)

EXHIBIT 39i

Equipment/Media Relationships and Considerations. *

Instrument	Media Used	Materials Production Considerations	Availability of Facilities and Equipment	Equipment Cost
1. Filmstrip or slide projector	35mm filmstrips or 2x2 slides	Inexpensive. May be done locally in short time.	Usually available. Requires darkended room.	low
2. Overhead transparency projector	Still pictures and graphic representations	Very inexpensive. May be done locally in short time.	Available. May be projected in light room.	low
3. Wall charts or posters	Still pictures	Very inexpensive. May be done locally in very short time.	Available. No special equipment needed.	very low
4. Motion pictures (projection to groups)	16mm motion picuture (sound or silent)	Specially-produced. Sound film is costly and requires 6-12 months time.	Usually available. Requires darkened classroom.	moderate
5. Motion picture projection as repetitive loops (8mm silent) to individuals	8mm motion picture film (silent)	Special production normally necessary. May be produced as 16mm film alone or locally at low cost and in short time.	Not normally available. Will need to be specially procured to meet requirement of instructional program.	low per unit, but moderate for groups
6. Magnetic tape recorder	¼" magnetic tape	Easy and inexpensive. Usually produced locally.	Available	low
7. Record player	33⅓, 45 or 78 rpm disk recordings	Need special recording facilities. Usually commercially made.	Usually available	low
8. Display area	3-D models	May vary in complexity and in difficulty of production. Component parts easy to obtain.	Available	varies from low to high
9. Television (closed-circuit)	Live presentations. Motion picture film. Videotape recordings. Still pictures.	Normally requires large and skilled production staff.	Not normally available	moderate to high
10. Teaching machines & programed textbooks	Programed material	Some programs available commercially. But will normally be specially prepared for course.	Not normally available	low per unit, but moderate for groups
11. System combinations	Television. Motion pictures. Still pictures. Audio recordings.	Complex. Probably will be done locally to meet specific requirements.	Not normally available	moderate to high

*Allen, W.H. Media stimulus and types of learning. Audio-Visual Instruction, 12, 1, 1967, pp. 27-31. Also in National Art Education Association, Final Report of the Uses of Newer Media in Art Education Project (Washington: NEA, 1966).

APPENDIX XI

ENVIRONMENTAL ACTION:

LOCAL PUBLIC BROADCASTING STATIONS

AND

COMMUNITY ENVIRONMENTAL ACTION

TABLE OF CONTENTS

Introduction 631

A. The Research Task 634

B. Support for Local Public Broadcasting Stations and Community Environmental Education and Action Programs 646

C. Community Environmental Education and the PBEC National Program: "Quality of Life" 659

D. Utilization of Local Community Environmental Education for Other National PBEC Programs 659

E. International Activities of PBEC 660

F. PBEC Staff Recommendations 663

G. Conclusions 664

Figs: 1. Community Action System Model 667

2. Milestone Chart for Community Education and Action Programs 669

3. Community Action Interconnections with Other PBEC Offices 670

References 671

"The Corporation for Public Broadcasting is committed to this use of television and radio to give the citizen an opportunity to become involved directly in the problems that confront him and the society. We have witnessed the potential of this idea in the town meetings on nutrition. To many directly involved in the town meetings, it was an unprecedented opportunity to give voice to their concerns before the eyes of their fellow citizens; to many of those who watched, the problem of hunger was changed from an abstraction to a very real human problem with a strong local identity,"

John W. Macy,Jr.'s report to the President of the U.S. concerning public broadcasting's role in promoting the White House Conference on Food, Nutrition and Health, (Jan. 26, 1970).

"....it is clear that the program officials at stations view public broadcasting as a nucleus for community awareness and action on environmental matters."

From the NAEB-PBEC survey, "Public TV and Radio Stations and their Environment, (Oct. 30, 1970)

XI. ENVIRONMENTAL ACTION:
Local Public Broadcasting Stations and Community Environmental Education

Introduction

Public broadcasting is increasingly emerging as the "voice of the community" -- the total community -- giving, often for the first time, the "small man", the local shopkeeper, machinist, student, housewife, minority member, government employee -- an opportunity to communicate his hopes, desires, problems, and aspirations to the community-at-large. This is the new power, the new democracy that is within the grasp of public broadcasting. Its value in community environmental education and environmental action programs, therefore, is clear.

Public television can convert the traditional didactic "monologue" technique of the medium into a source of meaningful, two-way communication. Through the use of group discussion, telephone tie-ins, panels, town meetings, etc., citizens can respond directly to program content, -- thereby enabling the total community to benefit from a realistic give-and-take educational process.

Honestly and carefully done, community education and action programs, coupled with public broadcasting, can do much more than treat our environmental problems -- they can, in the long term, indicate to the American public how to utilize problem-solving systems processes to revitalize our culture. By this is meant the desperate need to humanize our rapidly developing post-industrial society before it dehumanizes us all.

During the past six months of planning PBEC investigated the potential of public broadcasting in local community environmental education and action programming. Various model programs were documented and several, with PBEC assistance, were initiated. In-school environmental education, environmental manpower training, and community involvement, in general, on environmental matters were investigated on a national scale.[1]

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[1] Education surveys are described in Appendix I; Manpower in Appendix IX and community action programs in this Appendix.

This research has documented the increasingly important role that public broadcasting is playing as a focus for citizen involvement in a broad variety of local affairs, including those related to environment. Moreover, public broadcasting is doing more than merely devoting an increasing amount of time and energy to community problems; through such methods as advisory councils, televised town meetings, community discussion and research groups, panel discussions, and telephone tie-ins, it is actively eliciting the involvement and participation of local citizenry in the planning and implementation of and follow-up to these programs. A whole new concept in community education is being developed.

The growing environmental crisis is of vital concern to a vast number of individuals, organizations, schools, and communities across the country. All are anxious to learn more about the problems and to find ways to deal effectively with them.[2]

Public broadcasters have unanimously voiced their desires to participate in and support these education and action efforts.[3] However, they report that they are seriously restricted in what they can do because of limitations in staff, material, and technical resources. Nor are they aware of what other communities and public broadcasting stations have done and are doing to confront their local problems, successes and failures which could be most useful in their own environmental programming efforts.

In few areas is the need for PBEC more important than that of local station support. Citizens are most likely to take an active interest in problems and issues if they are personally affected by them and if they feel that they can do something to alleviate them. And this can best occur by treating problems at the local, most immediate level. In a survey conducted by Environmental Resources, many respondents complained that "nationally aired environmental programs failed to help viewers identify with the problems being shown even if they did develop awareness on a general level." By stimulating local environmental programming, by making information and program material and technical and professional resources available to local stations, and by the awarding of grants for production and community participation, PBEC can be an invaluable ally in enabling local stations, the schools and their communities to deal more intelligently with problems relating to their "quality of life."

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[2] A Survey of Public Attitudes Toward Urban Problems and Toward the Impact of Scientific and Technical Developments - Conducted for PBEC by Louis Harris & Associates, Inc., November 1970. Exhibit 22.

[3] Public Television and Radio Stations and The Environment - Report of the National Association of Educational Broadcasters to PBEC, November 1970. Exhibit 1.

PBEC will build a national System, coordinating local station efforts with our projected national televised Quality of Life Program, which in turn will often be partially composed of segments produced by local stations. The PBEC national education program will have a segment in the Quality of Life program and it too will relate to local stations both for ideas, and for development and testing of educational materials in local schools. Local stations will, wherever possible, be tied together regionally. All efforts will be backed up informationally and technically be the PBEC Communications Services Division which, in its operations, must be provided with news and developments for the local stations. Continuous evaluation of all efforts will by conducted both internally and externally at all levels and stages of operations. By evaluating presently known models of public broadcasting community participation and by seeking out and developing alternative examples, PBEC will be able to provide to all stations an invaluable set of suggestions and guidelines on which to base their own environmental education and action programs. Thus, the PBEC Education System, initially founded to improve the quality of our environment, will come into being. And PBEC intends to make this System international as soon as possible, realizing that environmental problems and ecological relationships are world-wide in scope and that unless action is taken on an international scale, the most pressing problems will be incapable of solution.[4]

The past months of study show conclusively that unless PBEC or some similar national-international effort is established, it will be nearly impossible for most local stations to secure the financial and technical resources needed to achieve the potential that has been described in this report.

A. The Research Task of Phase I

The Public Broadcasting Environment Center, in order to determine local community environmental education efforts (past, present and future), local public broadcasting involvement in these areas, community participation in public broadcasting, and roles that PBEC should play in stimulating and supporting such activities -- conducted the following activities, detailed accounts of which are included in the Appendix, during the past six months of research and planning:

1. To determine "attitudes toward the seriousness of certain urban problems and their effect on the lives of city residents," a national survey of over 3,000 people was conducted by Louis Harris and Associates, Inc.[5]

   In response to questions concerning air and water pollution, 52% of those queried were "very willing" to write letters to government officials; 40% to join a citizens' group working to solve the problems, and 46% to accept some personal restriction on "what they can and cannot do."

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[4] U Thant, Secretary General of the United Nations, said in a Texas speech printed in the Congressional Record (June 3, 1970): "This is the first time in its history that mankind faces not merely a threat, but an actual world-wide crisis involving all living creatures, all vegetable life, the entire system in which we live, and all nations large or small, advanced or developing. It is a crisis which concerns literally everyone, and involves directly or indirectly, almost everything."

[5] Louis Harris report, Study No. 2044, Exhibit 22.

Harris also observed, "Television has an important opportunity to encourage this....participation in the attack on pollution as well as on other problems. In a follow-up question 48% of the public felt that television could have a major influence in bringing about effectual solutions to these problems. Among public television viewers this figure stands at an even higher 55%."

2. A national survey of local public broadcasting television and radio stations conducted by the National Association of Educational Broadcasters (NAEB) to determine what programming on environmental education occurred in the past year, what problems were encountered in their production, and what environmental programming is planned for the coming year.[6]

   One of the major thematic results of the survey was the universal view of public broadcasting as a nucleus for community education on environmental matters, especially as they pertain to local situations. There was nearly unanimous desire to produce more in-depth and sophisticated documentations of environmental issues, but staff, operational and technical restrictions were cited as severely limiting such possibilities.

3. Surveys of in-school environmental education programs in the U.S. and abroad were conducted by the Education and Research Staff and consultants of the Public Broadcasting Environment Center. The results of these studies will be useful in the development of PBEC's national environmental education program, which is discussed later, as well as in the Community Action Program.[7]

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[6] NAEB report to PBEC, Exhibit 1.

[7] See Surveys, Appendix I, Exhibits 4,5 and 8 through 15.

4. A survey of environmental manpower training programs and possibilities conducted by Manpower Assistance Project, Inc. which sees opportunities for PBEC in this important and growing field, especially in the training of paraprofessional environmental technicians.[8]

5. A PBEC staff-conducted survey of past and current environmental action programs - individual, organizational and community-involved, governmental, and corporate - programs which might, in the future, be coordinated with public broadcasting to expand their effectiveness and to serve as models to other communities.[9]

6. Surveyed the development of program models to illustrate possible PBEC roles in support of local public broadcasting community environmental education and action efforts. A summarization of these models follows: (Detailed descriptions appear as Exhibits.)

   a. Programs Independently Initiated, but Cooperating with PBEC

      1) In Washington State, the Puget Sound Environmental Coalition is conducting a major television-centered community participation environmental project involving some 400 local discussion/action groups to which several follow-up programs have already been initiated -- a speaker's bureau, a county-wide environmental newsletter, a paper recycling center, and a comprehensive land plan.

         PBEC has supported an evaluation of the project to determine to what degree participants' grasp of environmental concepts has been heightened and in what ways this program might serve as a model for other parts of the country. (Exhibit 45).

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8. See Manpower Training, Appendix IX.

9. See Appendix I, Exhibits 7, Appendix IV, Exhibit 23, and Appendix XI, Exhibit 28.

2) Station WJCT in Jacksonville, Florida, which has carried numerous community participation and environmentally related programs, has been awarded a Corporation for Public Broadcasting production grant to produce a series on the Ecology of the Everglades. The station is also proposing to CPB the establishment of the first Public Broadcasting Center for Community Involvement. (Exhibit 51).

b. Programs, Proposals, and Planning Resulting from PBEC Stimulation and Assistance:

1) In Washington, D.C., the Frederick Douglass Community Center and WETA-TV have jointly developed a proposal for the "Utilization of Public Broadcasting Media as a Resource to Further Environmental Education in a Black Urban Community". The project would build upon a summer environmental education project funded by the Office of Education which has developed into an active in-school program involving student-teacher-parent participation.

PBEC was the catalytic agent for cooperation between the station and the Community Center. (Exhibit 40).

2) WNET, New York City, with hopes of carrying the environmental message to an audience of "affluent decision-makers and influential citizens, government officials, and environmental action organizations," has proposed the establishment of a Center for Environmental Communications which would function as a "service center" for environmental quality efforts, public and private, throughout the New York area. A second function would be to conduct an intensive environmental educational campaign through WNET programming, closed-circuit TV, printed material, radio, and direct mail.

PBEC instigated, funded and provided resource information for the development of this New York City area model for a Center for Environmental Communications. (Exhibit 44)

3) WSKG in Binghamton, New York, is working with the State University of New York Community Education program and with the office of the State Commissioner for Environmental Affairs with hopes of establishing a cooperative statewide public broadcasting and university broadcasting venture which would stress environmental awareness and education.

PBEC has been involved in bringing together groups and resource people with the station and in offering ideas about community organization, funding, and program content. (Exhibits 42 and 70)

4) KTSC-TV and the Hispano-American sector of Pueblo, Colorado, with the assistance of the Center for Research and Education, have developed a program that would provide in-school and community environmental education programs and manpower skill training for new environmentally related and communications job possibilities.

PBEC provided a small planning grant to CRE for its coordinating role. (Exhibit 43)

5) The Iowa Education Broadcasting Network and representatives from 18 Iowa conservation/ environment groups jointly prepared a three-faceted proposal to produce daily environmental news coverage, several hour-long environmental specials, and to sponsor a statewide televised environmental conference.

PBEC interest was the stimulus for the development of the planning conferences and the establishment of a task-force for development of the broadcast programs. (Exhibit 41)

6) KERA-TV, in Dallas, Texas has proposed an environmental education series for elementary school children that would, among other things, educate about ecological interrelationships, the need to preserve our natural resources, and provide practical suggestions of what children can do to clean up their environment and keep it clean.

In this case, PBEC was the recipient of an unsolicited proposal but has offered professional consultation about the content. (Exhibit 46)

7) The Statewide Public Broadcasting System in North Carolina is working with a recently formed environmental consortium, composed of state-wide environmental leaders, private and governmental, to develop a program of environmental awareness and education. The state has one of the nation's best in-school environmental education programs and it is hoped that public broadcasting can make it even more effective.

The consortium grew out of a meeting organized to respond to PBEC's inquiries and interests. (Exhibit 48)

c. Changing On-going General Community Action Programs into Environmentally-Oriented Projects:

1) A massive community-involvement drug education program sponsored by station WQED and funded by the Corporation for Public Broadcasting is in operation in the Pittsburgh area. Television programs, small discussion groups, town meetings, and written support materials are being utilized to educate about the drug abuse problem.

PBEC hopes to work with the organizational structure which has been set up to develop an environmental awareness project.

2) WITF-TV, Hershey, Pennsylvania, which has a history of award-winning community-involvement programming, especially in dealing with minority problems, has expressed interest in PBEC assistance to bring an environmental focus into its efforts. (Exhibits 49,50,58,59,60)

d. Regionalization of Public Broadcasting Environmental Education Programs:

Funded by an Office of Education grant through PBEC, the Rocky Mountain Federation of States held a conference August 10-21 at the University of Wyoming on the regional development and utilization of public broadcasting resources throughout Arizona, Colorado, Idaho, Wyoming, Montana, New Mexico, Utah, and Nevada. Entitled "Providing Environmental Literacy through Television", the conference established the first steps in creating a regional communication program for both formal and non-formal environmental education. Each state will now develop its own state plan to become part of an integrated regional plan.

e. Local Programming as a Component of a National Environment Related Effort:

1) Several public broadcasting stations... Boston, Chicago, Denver, Jacksonville, Omaha, Pittsburgh, San Antonio, San Francisco, District of Columbia, Los Angeles, Richmond, and Syracuse were involved in major citizen participation programs during the White House Conference on Food, Nutrition and Health, held last fall. Most were based upon two-way "town-meeting" formats. This effort was supported by grants from the Corporation for Public Broadcasting. PBEC is exploring with these stations the possibilities of similar efforts being undertaken to deal with environmental topics. (Exhibit 62)

2) In Chicago, WTTW is investigating the possibility of developing a program in cooperation with the Chicago Model Cities Program, "Operation Environmental Improvement", one of five such experimental HUD programs around the country. Here again, this project grew out of information and suggestions by PBEC to the station of a possible useful coordinated interest. (Exhibit 55)

3) In Pittsburgh, it appears that this process may reverse itself -- the locally conducted drug education effort may, with Corporation for Public Broadcasting help, become a national prototype program. (See above)

7. PBEC research and involvement with these models has suggested various themes which could serve as criteria for PBEC development and support of similar programs in the future:

   a. The use of community environment advisory councils to assist public broadcasting stations in program planning, implementation, promotion, and evaluation.

   b. Community-centered programs, involving active community participation (town meetings, discussion groups, phone-ins, research activity, action projects).

   c. Cooperation and working relationships established with local civic, conservation, professional, and government groups.

   d. Variety of target audiences. A distinguishing factor of public broadcasting compared with its commercial counterparts is that it has more freedom to program for target audiences. This offers unique opportunities in dealing with environmental matters where various audiences may have vastly different priorities and understandings. Particular target audiences with which PBEC research has been concerned are:

1. children
2. youth 15-25
3. minorities
4. middle-America
5. environmental activists and decision-makers

e. Environmental priorities and needs. We need to be particularly open to the varying interpretations of the meaning of "environment" and of different approaches that will be taken in treating the problems. In some instances, the physical environment will be stressed - in others, particularly those involving disadvantaged minorities, the social aspects of the "quality of life" may be emphasized. Some stations will favor in-school programs; others, community town meetings; others, job training. What is essential is that each community determine its own environmental needs and means for dealing with them.

f. Utilization of written support materials. Study guides, pamphlets, background information, and hand-outs, will enhance the effectiveness of TV programming and the creation of such supportive materials will be an integral part of PBEC's national program planning.

g. Broad geographic distribution/regionalization. PBEC research has shown a potential for community environmental action programming in every part of the United States and it will strive to support projects in all areas. Also, the possibilities of tying together various communities and stations within defined geographic regions where common environmental problems are apt to be unique from other areas will be actively pursued. Such regionalization is important in illustrating that ecological interrelationships expand much further than the limits of one's own community. And, concurrently, regionalization should eventually lead to international linkages. One regional grouping is currently being developed in the Rocky Mountain states. Quite possibly, key, established, public broadcasting stations could make their resources and experience available to other smaller stations within their region.

8. Local Station Production Problems:

Perhaps the two most limiting factors cited by public broadcasting stations in the NAEB survey in the production of public broadcasting community education and action programs were funding and professional/technical support. Nearly all television stations queried in the NAEB survey cited the lack of money and staff to adequately "investigate issues fully, develop or purchase suitable resource material, and to produce programs or series with the greatest probability of impact". To this should be added the lack of evaluative information about effective models for broadcasting and community participation that have been successful or have elements of their programs that could be useful to other stations.

Funding: It is clear that various sources of financial assistance must be sought to carry out program desires. In addition to funds which PBEC hopes to be able to provide, PBEC will help local stations in their search for other sources of assistance. The possibilities, especially now that environment is the "in" topic, are many. CPB is currently funding the Jacksonville and Pittsburgh stations; Ford-funded community action projects are going on in San Francisco and Hershey, Pennsylvania; there is collaboration between public and commercial broadcasting in the Puget Sound Project; Office of Education funds have gone into the Anacostia program in Washington, D.C.; and the possibility of working with Model Cities funding in Chicago has been noted. Similar funding "mixtures" will, in the future programs, be sought and encouraged.

Professional/Technical Support: An area which PBEC must be able to provide, either through its own staff and in-house resources, such as its comprehensive environmental library and communication system, or through the utilization of outside consultants, particularly from colleges and universities which have radio and television facilities, community education programs and expertise on environmental issues. Community involvement specialists, environmental programming experts, audience and evaluation consultants, among others, will be needed to maximize program sophistication and impact, both at the local and national levels.

9. Conclusions

On the basis of the foregoing research and observation, the PBEC System was devised to meet these needs. It is therefore recommended that PBEC assume the responsibility of assisting local public broadcasting stations, including instructional TV and radio, and their communities in furthering public awareness and education about environmental matters; that it provide local stations with program funding for environmental education action programs, and manpower training; that it communicate successful models for broadcasting and community involvement; that it make available technical and professional assistance; that it produce supportive educational materials, both written and audio-visual; that it assist the station and community in evaluating their programs to determine their successful elements; that it assist in local station fund-raising; as it relates to environmental programming; and that it serve as a clearinghouse of environmental information, research and other relevant materials and services in order to serve the needs of the above programs.

10. Recommendations:

When funded, PBEC recommends a three-phase program to establish the organizational structure to carry out these objectives. Stage I will consist of informing all public broadcasting stations of PBEC's goals and operations and soliciting capability statements from those stations interested in developing programs. Stage II will involve the selection and evaluation of alternative program models and the coordination of selected planning grants. Stage III will deal with program implementation, evaluation and feedback.

Grants will be made available to public radio and television stations (community, public school, and college and university operated) that demonstrate a committment to community environmental education. Wherever possible, PBEC will assist these stations in the development of community environmental education programs, linking together formal school programs, continuing education, manpower training, and other formal and non-formal community education activities. Through this overall process, a nationwide PBEC environmental system will eventually be established.

Certain overall obligations and practices of the grants program follow. They will apply throughout all phases of the operation.

B. Support for Local Public Broadcasting Stations and Community Environmental Education and Action Programs.

1. Definition of Local Public Broadcasting Environmental Community Education

Local public broadcasting environmental community education is defined as that utilization of the public broadcast media to inform, stimulate, and cooperate with individuals and citizen groups, schools, and other public and private organizations, to engage collectively in educational efforts to enhance community awareness and concern for environmental problems, to train citizens for skills needed for environmental management, and to engage in specific activities designed to bring about a cessation or retardation of environmentally destructive processes.

2. Expected Results of Local Public Broadcasting Environmental Education Programs

There are three levels of expected results from effective local public broadcasting environmental participation programs:

a. increased awareness of local environmental issues, alternatives, options and resources, a community education process which may lead into

b. an action phase in which specific actions and programs are undertaken to bring about the changes determined necessary to improve local environmental conditions; during and after which exists

c. an evaluation phase to help determine successful programs or program elements which in turn can be communicated back to the community or to other communities.

In the first phase, the community is made aware of new information, ideas, techniques -- they organize to discuss the issues -- and they formulate plans of action. Depending upon local conditions, this process may take a few weeks or it may take many months.

In phase two, awareness and concern turns into responsible action and the results of human efforts -- clean-ups, urban planning changes, new laws, stricter enforcement of existing statutes, local pollution monitoring systems, improved public transportation, preservation of natural areas -- not only create observable, salutary changes in the physical environment, but also help to bring about a new social sense of community, of common cause -- the active involvement of citizens in the management of their own communities.

Lastly, a continuous evaluation and feedback system will enable the community to assess and improve or redefine their activities during the program and to assist in planning any new efforts.

3. General Community Education Mechanism and the Role of Public Broadcasting

Community education programs result from public awareness of the need for them. This concern is generated through some form of effective communication -- visual, written, spoken, or experimental. Initial awareness and concern leads to a desire for more information, problem definition, the development of possible solutions, and, finally, to the strategy for the utilization of resources to achieve solutions.

Public broadcasting can greatly facilitate this process. As part of a formal and/or non-formal education process, it can make its audience aware of the problems, raise issues, and provide information that will encourage reaction. It can stimulate and facilitate community discussion and forums to deal with local problems and can assist in finding needed information and resources. And during any action phases, it can help evaluate progress so as to insure the most efficient utilization of resources and efforts. It can provide feedback to the community so that revisions of the program can be made as well as plans formulated for new "second generation" efforts.

As the community models described earlier indicate, community action can take a variety of forms. PBEC eventually will design various broad model formats to be operable under different conditions.

4. PBEC Support for Local Public Broadcasting In-School Environmental Education Programs

The survey of current in-school environmental education programs throughout the country and those anticipated in the coming year indicates an important role for PBEC in support of such efforts utilizing local public broadcasting resources. (Exhibit 4)

PBEC's national education program will utilize successful local educational efforts when possible in the development of its resources and materials. Naturally PBEC will work closely with local groups in the testing and evaluation of experimental models. Various university faculty and graduate students will become involved in action projects and could serve as advisors or group leaders in local environmental education programs, initiated by PBEC or PBEC efforts.

Some expected areas for PBEC support are:

a. The development of local in-school environmental education materials, both printed and audio-visual.

b. To stimulate and fund more effective use of public and instructional broadcast media in school-related environmental education.

c. To make locally available in-school environmental educational materials produced in other communities and nationally.

d. To provide teacher orientation programs for the utilization of environmental education materials.

e. To provide environmental educational consultants.

f. To assist in expanding school programs into community-wide education efforts.

g. To offer certain programs regionally.

h. To communicate information about programs occurring within the U.S. and internationally.

i. To provide links with appropriate governmental agencies and other relevant private and public groups.

j. To support the development of new environmental programs, open school or free school experiments, and other innovative educational efforts.

k. As the PBEC Education Program develops, to build it increasingly into local school programs.

l. To participate in the evaluation of program effectiveness and communicate this information to other educational groups.

5. PBEC Support for Environmental Manpower Training

Environmental manpower training is another potential area of public broadcasting community action involvement. PBEC research has disclosed that so far there has been very little activity in this field and that further study and development are required (Appendix IX). It is quite clear, however, that such training will become increasingly important in the future. Perhaps through the utilization of local public broadcasting resources, an efficient and effective means of imparting knowledge and skills relating to environmental protection and control can be established. Types of training that might be considered are:

a. Technical and vocational skills, such as needed by water quality and air standard officials; environmental health officers, resource conservation personnel and other skilled or semi-skilled jobs pertaining to environmental improvement, both at the managerial and operational levels.

b. Professional in-service training, retraining courses, seminars, and workshops on environmental health problems, urban planning, mass transportation and other environmental issues of concern to the medical profession, government officials, private industry, etc. (Exhibit 64)

c. Basic educational skills, reading, science, math, etc. - requisite and related to technical and vocational skills.

d. Communications technology, to enable community people to become involved in this rapidly expanding, vitally important field -- which has special significance to public broadcasting.

e. Leadership training and group organization, which is needed to most effectively exploit the potential of public broadcasting in developing active community participation programs.

Manpower training programs might be funded through direct station grants from governmental or institutional sources, or they might be coordinated with other community and educational activities. Funding might specifically be sought under the Manpower Development and Training Act. Supportive materials could be developed through the PBEC education program or through manpower consultants.

6. PBEC Technical and Consultative Services Available for Local Public Broadcasting

Consultative resources will never be imposed upon a community; they will only be made available to those stations that express a desire and need for outside assistance.

a. However, to all public broadcasters requesting assistance, PBEC will have available a talent bank of consultative resources to assist them in the production of community environmental education, manpower training, and community action programs. Consultants can often provide the expertise to perform certain developmental tasks that local stations are unable or poorly equipped to do. These services will be paid for by the local stations.

b. Through this service, PBEC will be able to provide access to outstanding talents in such fields as broadcasting, communications, cinematography, graphics, education, evaluation, teacher training, manpower training, community organization, as well as governmental officials, urban planners, artists, architects, ecologists, and other experts. Many noted resource people have already offered their services to local community programs. On occasion, such expertise may well come from public broadcasting stations experienced in community involvement and environmental programming. From time to time, PBEC may be able to "detail" such talent to work with local stations for program development.

c. In coordination with its Communications Services and Research office, PBEC will provide stations with a comprehensive source of ecologic, scientific, and technical information and related print and audio-visual material.

d. Through its Communications Services, PBEC plans to prepare a catalog of environmental program ideas from all public broadcasting stations and will supply stations with news of various action projects occurring around the country. This information could possibly be sent periodically in a newsletter-type format.

e. Through Communications Services and Research Division, PBEC will assist local stations in obtaining environmental media materials. PBEC might make available environmental public service announcements, short films of 5, 10 and 15 minutes, - for which there is often need to "fill-out" regular hour and half-hour programs - animated cartoons, and even local fund-raising spots tied to environmental messages. PBEC could collect and evaluate the free films and tapes from federal governmental agencies, industry, and conservation groups, and after checking for quality and editorial objectivity, could distribute such material to local stations.

f. Workshops for station personnel and community organization leaders to develop common environmental education and action goals and objectives.

7. Consultant Support to PBEC for Monitoring and Evaluation of Programs

a. PBEC operational success will depend upon careful planning and assessment of program possibilities plus a continuous evaluative process which will provide program feedback to enable revision of policy when necessary. This thninking is substantiated by the NAEB report survey, the CPB report on the Hunger Program, the OSTI Report, (Exhibits 1,62,63) and PBEC staff research. PBEC will be prepared to provide to all stations assistance in obtaining qualified professional evaluation resources.

b. Consultants, in some cases drawn from local public broadcasting stations, will assist PBEC staff in establishing criteria for effective utilization of funds to achieve PBEC community education and action objectives and in the preparation of guidelines for proposals. They will advise as to human and material resources existing throughout the country and help to identify maximal opportunities for effective stimulation of community programming. And they will assist in setting up PBEC's internal and external evaluation process.

c. In addition, consultants in the field can provide valuable support in the monitoring and evaluation processes at the local level. They can explain evaluation needs and procedures to station personnel and can conduct process evaluation of community action dynamics. Such an effort involves observing and where requested, assisting the shifts in relationships among groups around environmental foci, the gradual building of agendas for action, and finally, some evaluation of the impact of action. While these human dynamics processes are complex and slow-moving, they are fundamental to causing change. By monitoring them, conclusions can be derived which will be of great assistance in establishing modes of action which have the highest potential for success.

8. Role of PBEC Advisory Council in Local Community Environmental Activities (See Exhibits 18-20)

Various members of the PBEC Advisory Council have indicated their interest in participating actively in local community public broadcasting environmental efforts and offering their services in program planning, production, and implementation. These distinguished advisors would bring the support and resources of their respective institutions and organizations with them.

9. Role of the Corporation for Public Broadcasting's Advisory Committee of National Organizations in Local Community Environmental Efforts

CPB's National Advisory Committee is composed of organizations that have constituent groups throughout the United States. (For a description of the advisory role of this committee and for a listing of its members, see Appendix III, Exhibit 21, "Environment Subcommittee"). CPB has asked these organizations to "help local stations expand their audiences and their community services." It is anticipated that these CPB advisors will encourage their local organizations to provide assistance to local stations in their environmental programming.

10. Funding Phases and Procedures

    a. Phase I: A letter explaining the functions and operations of PBEC will be sent to all qualified public broadcasting TV and radio stations across the country. It will include guidelines for community action, mention groups that might become involved, suggest ideas for organization, and provide other helpful data. Limited financial support - perhaps $2,000 for television stations and $500 for radio stations - will be made available to those stations that express interest in the PBEC program, which will enable them to determine what community resources - civic organizations, local schools, public figures, conservation groups - they could draw upon for the development of local environmental programming packages.

       This information will then be incorporated into environmental capability statement which will be sent to PBEC for evaluation. Those that meet the criteria for environmental education, community action, and/or manpower training programs will next be awarded one-to-three month planning grants. As noted PBEC will work closely with the stations during this period, making available technical or operational expertise whenever necessary.

       The plans judged by PBEC as worthy of implementation will then be awarded production grants to carry out the proposed objectives. Support will cover costs of program production and promotion; supplementary written and visual materials; workshops, and community involvement, teacher training and other program-related expenses.

Upon reception of the grants, the local stations will implement the program according to the schedule developed during the planning phase. All grants will be subjected to continuous evaluation, both by the station and in cooperation with PBEC's Evaluation and Research Division. This evaluation will determine the direction and character of future activity.

b. Phase II - Planning Grants: An advisory group representing various professional interests and backgrounds will assist PBEC in the selection of stations to receive environmental planning grants.

These grants will be awarded for one to three month planning periods and will vary in amount depending upon what is decided appropriate and feasible. During this period the station receiving the grants will work closely with PBEC so that information, resources, and materials can be exchanged and reviewed.

PBEC will be seeking varied models of station-community organizations which are intrinsically exemplary, and often strong possibilities for adaptation to other localities.

1) Among the themes and guidelines for determining planning grant recipients will be the following:

    a) The degree to which the project is community-centered and community-involved.

    b) The degree to which appropriate consultative support, where needed, has been used and is planned in order to build a sophisticated and effective program.

c) The funding patterns: (1) the degree to which various sources of funding have been explored; (2) the proportion of the station's total expenditures constituted by PBEC funding; (3) the percentage amount of money requested which goes for community action and involvement and the percentage projected for station expenditures for broadcast production and staff. (PBEC will tend to favor the former.).

d) The environmental priorities stated.

e) What the target audiences are.

f) Geographic location - based upon PBEC's desire to achieve a broad national scope of operations.

g) Program regionalization possiblities.

h) Potential links to national programs. (Regional and community Medical Programs (Exhibit 64), Model Cities, (Exhibit 55), Regional Air Quality Hearings, etc.).

i) How the program relates to other PBEC activities. This is important since we wish to build a strong PBEC system involving all facets of the Center. The various PBEC components will be:

    (1) Quality of Life Program. PBEC's nationally televised Quality of Life series will begin in the fall of 1971. Local coordination of this program will be discussed at length in the next section of this report.

(2) National Education Program which will at times use ideas from local areas and also develop and test materials in the field.

(3) Environmentally oriented manpower training activities.

(4) Information Services. Local environmental action programs, unique environmental conditions, and promising experimental educational techniques will constantly be sought to bolster the Center's library of information and environmental data. We will especially be watching for innovative broadcasting techniques being utilized by local stations - i.e., special feedback methods, experimental programming approaches, use of cable television and videocassettes.

2) During the planning grant period, PBEC will work increasingly to hold a series of regional meetings with station managers and program directors to acquaint them with the objectives, goals, and resources of the PBEC organization, to discuss plans and possibilities for the Quality of Life series, problems of community involvement, funding possibilities, and regional coordination efforts.

Another possibility of mass communication is through the closed circuit interconnection of the Corporation for Public Broadcasting. Perhaps a short course on PBEC operations, environmental problems, community action, etc. would be possible to help facilitate stations' planning operations.

c. Phase III - Implementation Grants: Following the planning period, the stations whose proposals are judged worthy of implementation according to a selection process similar to that of determining Phase II planning grants, will be awarded implementation grants of varying amounts, depending upon individual situations and financial capabilities, to carry out their stated objectives.

Such grants will provide support for broadcast program production, print and other related material, promotion, consultative resources, community organization, teacher orientation, distribution, and other costs needed to produce instructional, manpower, and community environmental action programs.

Once awarded the grants, the stations will implement the programs according to the schedule developed in the planning phase. All such efforts will be continuously evaluated by the stations in coordination with PBEC's Division of Research and Education and other PBEC staff and consultants. The results of such evaluation will determine the character and direction of further activity.

During the implementation period, PBEC will continue to make locally available its resources and technical assistance as during the earlier phases.

These first implementation projects will probably just be getting under way when PBEC's national Quality of Life Series commences in the early autumn of 1971. The series could well be part of the local program plans as well as certain segments of local programs be included in the national series. Thus, the PBEC System will involve the local stations with all aspects of its operation.

C. Community Environmental Education and the PBEC National Program: "Quality of Life"

The national "Quality of Life" (working title) series will probably be the only regular environmental programming to be received by many communities. It is therefore essential to encourage a response to this program that will lead to the development of local environmental community education programs. Print and audio-visual resources and other support materials should be made available locally.

The "Quality of Life" series will be planned in such a way that component segments can be used independently by local stations. In this way PBEC can make multiple use of its national programming grants. Ten to 15 minute segments of the national QOL series could easily be "built upon" by local stations to create local half-hour programs relating to local environmental issues. Such re-edited programs could also be used by local stations in conjunction with locally-produced panel programs and "Speak-Outs."

PBEC will also produce a community action guide to be distributed with the "Quality of Life" series, it would indicate sources of information about the environmental issues covered and provided information about the role of public broadcasting in community environmental awareness and action.

There are currently many environmental action programs across the country which have no established relationships with public broadcasting (Exhibit 23). Such programs might be enchanced by public broadcasting resources and could be a means of community involvement for the station. The national PBEC programs should stimulate this kind of interaction.

D. Utilization of Local Community Environmental Education for Other National PBEC Programs

Local community environmental education programs will be sought by PBEC for use in its national efforts. Possibilities include:

1. Reports on community education and action programs could serve as material for local and national

environmental news broadcasting. This could provide interesting and stimulating programming in the early months of PBEC before the national series is available. Such material might also be employed in 30-60 second spot announcements to promote the coming of the "Quality of Life" series.

2. The human dynamics of community education and action programs could be filmed, broadcast live and aired as human interest segments in the Quality of Life series.

3. Actual TV and Radio programs resulting from environmental community education and action programs could become segments of PBEC's national series.

4. Particularly exciting education programs of schools or universities might be the subject of a national PBEC TV or radio program, where it would be interrelated with PBEC's own education program.

The ultimate aim is a PBEC System with a national locally-based station mandate. We should hope to build increasingly refined models of community environmental education which could be applicable under varying circumstances, and PBEC would hope to create increasingly effective models of broadcast-community cooperation in order to reach our basic goal of improving the environment.

E. International Activities of PBEC

Another ultimate result of the PBEC System will be increasing involvement in international activity. (Exhibits 3, 74). We shall begin with communications and gradually coordinate and integrate our activities more and more on an international basis.

Since environmental problems are interrelated and are international in scope, the concerns of PBEC must essentially be international as well. At some point, PBEC must begin to link local, regional, and national programs and community efforts with the international aspects of the problems. To initiate this essential communication process, PBEC should initiate an on-going exchange of information, programs, materials, and films with other countries. A cooperative effort could be developed early in PBEC operations with Canada, Great Britain, and Japan, whose broadcasting systems have been particularly active in environmental programming.

To add the international aspect to the "Quality of Life" series, there will be need to occasionally film program segments abroad. Other countries' problems and environmental activities, international ecological problems, etc. will greatly impress upon the American audience the need for world-wide action. Funds to do such work might be sought from organizations like the World Bank, AID, and various foundations and non-profit institutions or, if possible, on a joint funding basis with the broadcast systems of cooperating countries.

There may also be opportunities to participate in the training of international development officials -- especially since the ecological consequences of development are now being widely discussed and debated. For example, the Peace Corps or AID might find specially designed PBEC programs useful. And PBEC might be able to market such programs abroad to interested governments or to private industry.

Also, there is strong interest on the part of the World Bank, AID, and various national governments in the use of television for skill training and adult education. PBEC should research the opportunities in this field.

1. Participation in the 1972 Stockholm Conference

   PBEC should look into the possibility of participating with the State Department in the United Nations Conference on the Human Environment to be held in Stockholm in 1972.

   By that time, PBEC will have established numerous international contacts and could be one of the United States' major sources of visual and graphic material on environmental issues. It would, therefore, be the logical organization to communicate our country's major understandings of international environmental issues.

2. First International Public Broadcast Environment Program

The British Broadcasting Corporation has proposed to KCET, Los Angeles, the development of the first international environmental boradcast program involving the use of communication satellite connections. BBC's proposal is based upon the great world-wide interest that would be generated by having several American ecologists and European scientists discuss the critical issues before an international audience.

KCET in turn has invited the participation of PBEC in the development of this project. It is hoped that PBEC will help shape the direction and content - and perhaps share in funding - this program which will be aired late next summer or early fall, perhaps in association with the PBEC "Quality of Life" series.

3. Recommendations for International Activities of PBEC

To fulfill its international responsibilities, PBEC should further investigate and initiate possible international activities soon after becoming operational.

a. PBEC should initiate the establishment of an international committee for environmental broadcasting and hold at some time in the coming year an international conference to establish ties with broadcasting systems from other nations. Through this conference it would hope to establish a process for the international exchange of programs and information, to outline the process for the development and production of programs overseas for PBEC use in this country, and to encourage joint program development for international use.

b. PBEC should set up an international marketing mechanism to facilitate the distribution and sale of film, video programs, and print materials.

c. PBEC should investigate the international potential for environmental management manpower training programs; the training in environmental skills of American personnel going abroad; and the possibilities for environmental orientation programs for foreign governments and private industry.

d. PBEC should investigate, with the State Department, the possibility of participation in the Stockholm Conference in 1972, particularly in reference to the development of the U.S. visual presentation.

e. PBEC should initiate sometime during its first year of operations, an experimental international environmental awareness program with Canada or Mexico and should pursue similar efforts with the BBC in Great Britain.

f. PBEC should establish a budget for international activity.

F. PBEC Staffing Recommendations

PBEC will establish an office for the development and support of local public broadcasting station environmental community action, in-school education programs, and manpower training and become a center for local community environmental communication.

1. This office in coordination with other offices of PBEC will stimulate and support public broadcasting and local stations for efforts in environmental community action programs, in-school education programs, and manpower training programs, locally and regionally, and provide funds to assist in the planning, production, implementation, and evaluation of such programs and to obtain all necessary consultative technical and professional resources, promotion, print and other audio-visual materials, teacher training, leadership and group dynamics training, community affairs support and other activities deemed necessary to accomplish the program objectives.

2. These efforts are related to the use of all broadcast media, including possible utilization of closed circuit, narrow cast, and cable TV and/or other communication technology.

3. Establishment of Staff: Efforts to hire staff for this operation should commence in December. It is anticipated that staff needs will be limited at this time to a director, two operations officers and one secretary. These officers should be hired within the first two months of Phase II operations. However, by the time the grant planning Phase II is over, PBEC should have five or six people on the community action staff and then be prepared to hire its own consultants to give a sufficiently large and varied team to go out into the field. The experience of others has led us to believe that with this kind of staffing pattern one is capable at once of maintaining ties with the field and yet still keeping contact with one's Center.

G. Conclusions

1. Throughout the country, public broadcasting is becoming increasingly community-need centered and is increasingly involved in local public affairs and community education.

2. Public broadcasters, more than ever before, are turning to the communities they serve for advice and participation in program planning and implementation.

3. Nationally, there is a great deal of local interest and activity in environmental education.

4. Public broadcasting can communicate the environmental needs to more people in a shorter period of time than any other medium or method.

5. Public broadcasters have indicated strong interest in environmental programming, especially as it relates to local issues and is done in cooperation with local groups.

6. Local stations will be unable to achieve their "environmental potential" unless they secure outside support, financial and professional.

7. Public Broadcasting Environment Center (and its related System elements) is uniquely qualified to provide the assistance essential to successful local station community Environmental Education: Education.

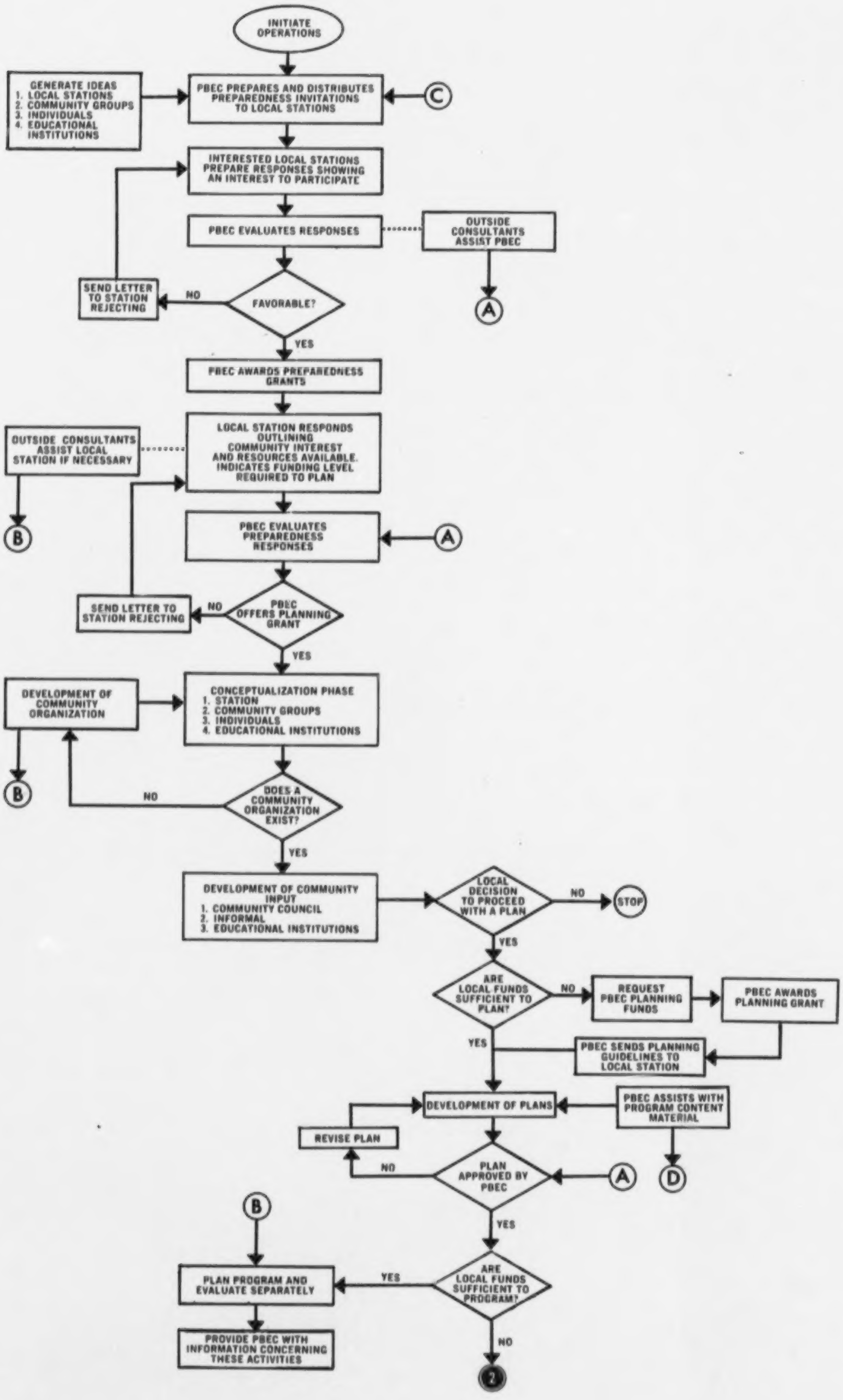
   a. It will be a central source and coordinator of environmental program information, professional, technical, and material support needed to produce community education programs;

   b. Within the fiscal limitations of PBEC and according to established funding criteria, it will provide financial assistance to local stations for the development of such programs;

   c. PBEC will assist wherever possible in the monitoring and evaluation of environmental education programs to provide continuous feedback for the improvement of current programs as well as to assure that alternative program models are continually evaluated and results documented. Thus, the lessons learned from these initial efforts can be communicated to other stations, so that successful models or aspects thereof can be adapted to other situations. On the basis of constant feedback and evaluation, these models can be refined and subsequently PBEC station efforts improved.

8. PBEC will help to create that essential link between communities and regions, which will gradually enable everyone to face issues that know no political boundaries.

10


INITIATE OPERATIONS
GENERATE IDEAS
1. LOCAL STATIONS
2. COMMUNITY GROUPS
3. INDIVIDUALS
4. EDUCATIONAL INSTITUTIONS
PBEC PREPARES AND DISTRIBUTES PREPAREDNESS INVITATIONS TO LOCAL STATIONS
C
INTERESTED LOCAL STATIONS PREPARE RESPONSES SHOWING AN INTEREST TO PARTICIPATE
PBEC EVALUATES RESPONSES
OUTSIDE CONSULTANTS ASSIST PBEC
A
SEND LETTER TO STATION REJECTING
NO
FAVORABLE?
YES
PBEC AWARDS PREPAREDNESS GRANTS
OUTSIDE CONSULTANTS ASSIST LOCAL STATION IF NECESSARY
LOCAL STATION RESPONDS OUTLINING COMMUNITY INTEREST AND RESOURCES AVAILABLE. INDICATES FUNDING LEVEL REQUIRED TO PLAN
B
PBEC EVALUATES PREPAREDNESS RESPONSES
A
SEND LETTER TO STATION REJECTING
NO
PBEC OFFERS PLANNING GRANT
YES
DEVELOPMENT OF COMMUNITY ORGANIZATION
CONCEPTUALIZATION PHASE
1. STATION
2. COMMUNITY GROUPS
3. INDIVIDUALS
4. EDUCATIONAL INSTITUTIONS
B
NO
DOES A COMMUNITY ORGANIZATION EXIST?
YES
DEVELOPMENT OF COMMUNITY INPUT
1. COMMUNITY COUNCIL
2. INFORMAL
3. EDUCATIONAL INSTITUTIONS
LOCAL DECISION TO PROCEED WITH A PLAN
NO
STOP
YES
ARE LOCAL FUNDS SUFFICIENT TO PLAN?
NO
REQUEST PBEC PLANNING FUNDS
PBEC AWARDS PLANNING GRANT
YES
PBEC SENDS PLANNING GUIDELINES TO LOCAL STATION
DEVELOPMENT OF PLANS
PBEC ASSISTS WITH PROGRAM CONTENT MATERIAL
REVISE PLAN
NO
PLAN APPROVED BY PBEC
A
D
YES
B
PLAN PROGRAM AND EVALUATE SEPARATELY
YES
ARE LOCAL FUNDS SUFFICIENT TO PROGRAM?
PROVIDE PBEC WITH INFORMATION CONCERNING THESE ACTIVITIES
NO
2

B
REVISE FINAL PLAN
• DISCUSSI
GROU
• GROUP T
PBEC COULD PROVI
MATERIALS &
GROUP DYNAMICS
LEADERS
A
Indicates

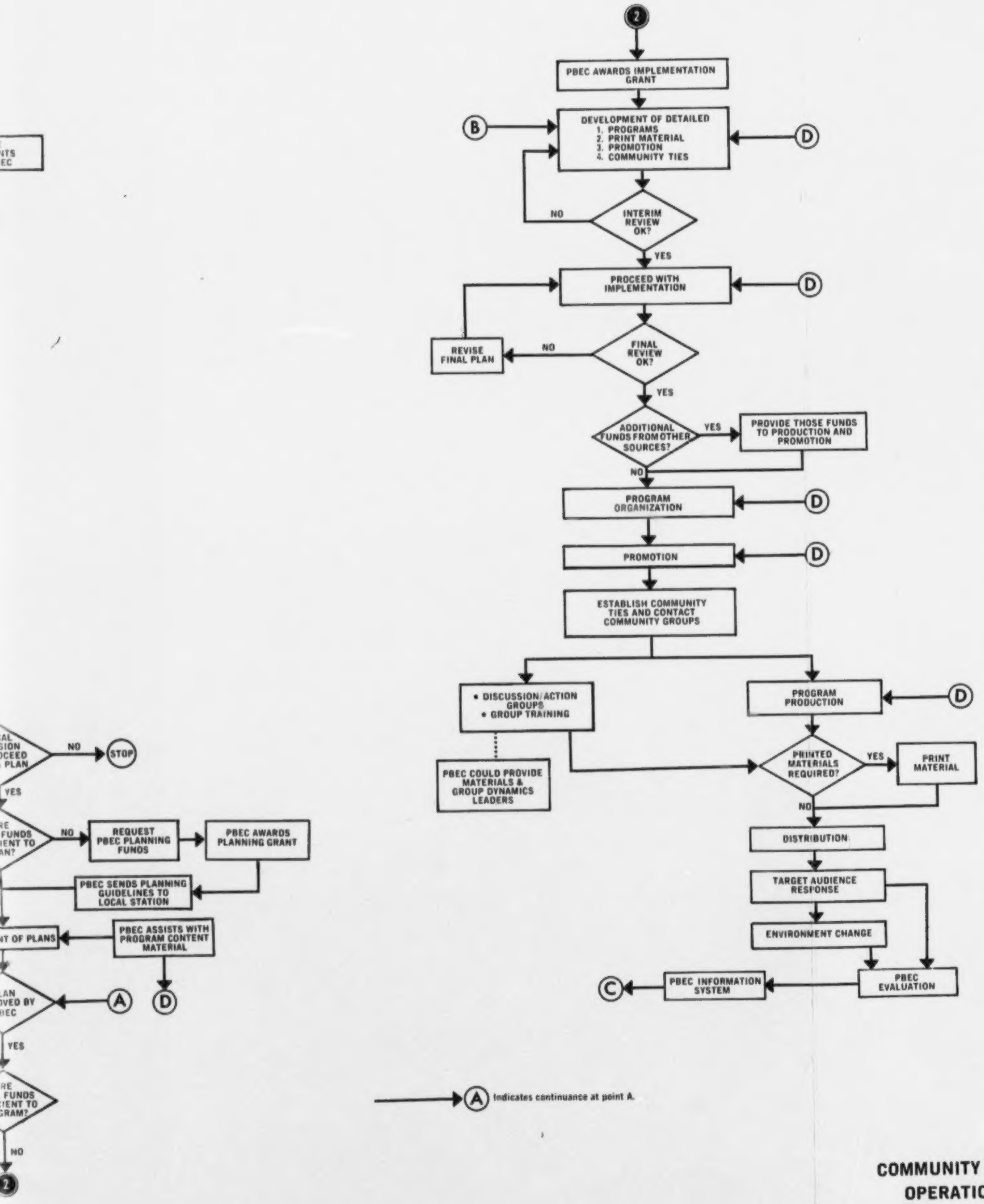

2
PBEC AWARDS IMPLEMENTATION GRANT
B
DEVELOPMENT OF DETAILED
1. PROGRAMS
2. PRINT MATERIAL
3. PROMOTION
4. COMMUNITY TIES
D
NO
INTERIM REVIEW OK?
YES
PROCEED WITH IMPLEMENTATION
D
REVISE FINAL PLAN
NO
FINAL REVIEW OK?
YES
ADDITIONAL FUNDS FROM OTHER SOURCES?
YES
PROVIDE THOSE FUNDS TO PRODUCTION AND PROMOTION
NO
PROGRAM ORGANIZATION
D
PROMOTION
D
ESTABLISH COMMUNITY TIES AND CONTACT COMMUNITY GROUPS
• DISCUSSION/ACTION GROUPS
• GROUP TRAINING
PBEC COULD PROVIDE MATERIALS & GROUP DYNAMICS LEADERS
PROGRAM PRODUCTION
D
PRINTED MATERIALS REQUIRED?
YES
PRINT MATERIAL
NO
DISTRIBUTION
TARGET AUDIENCE RESPONSE
ENVIRONMENT CHANGE
PBEC EVALUATION
PBEC INFORMATION SYSTEM
C
NTS
EC
AL
SION
CEED
PLAN
NO
STOP
YES
RE
FUNDS
IENT TO
AN?
NO
REQUEST PBEC PLANNING FUNDS
PBEC AWARDS PLANNING GRANT
PBEC SENDS PLANNING GUIDELINES TO LOCAL STATION
NT OF PLANS
PBEC ASSISTS WITH PROGRAM CONTENT MATERIAL
D
LAN
OVED BY
BEC
A
YES
RE
FUNDS
IENT TO
GRAM?
NO
2
A Indicates continuance at point A.

FIG. 1
COMMUNITY EDUCATION/ACTION
OPERATIONS FLOW CHART

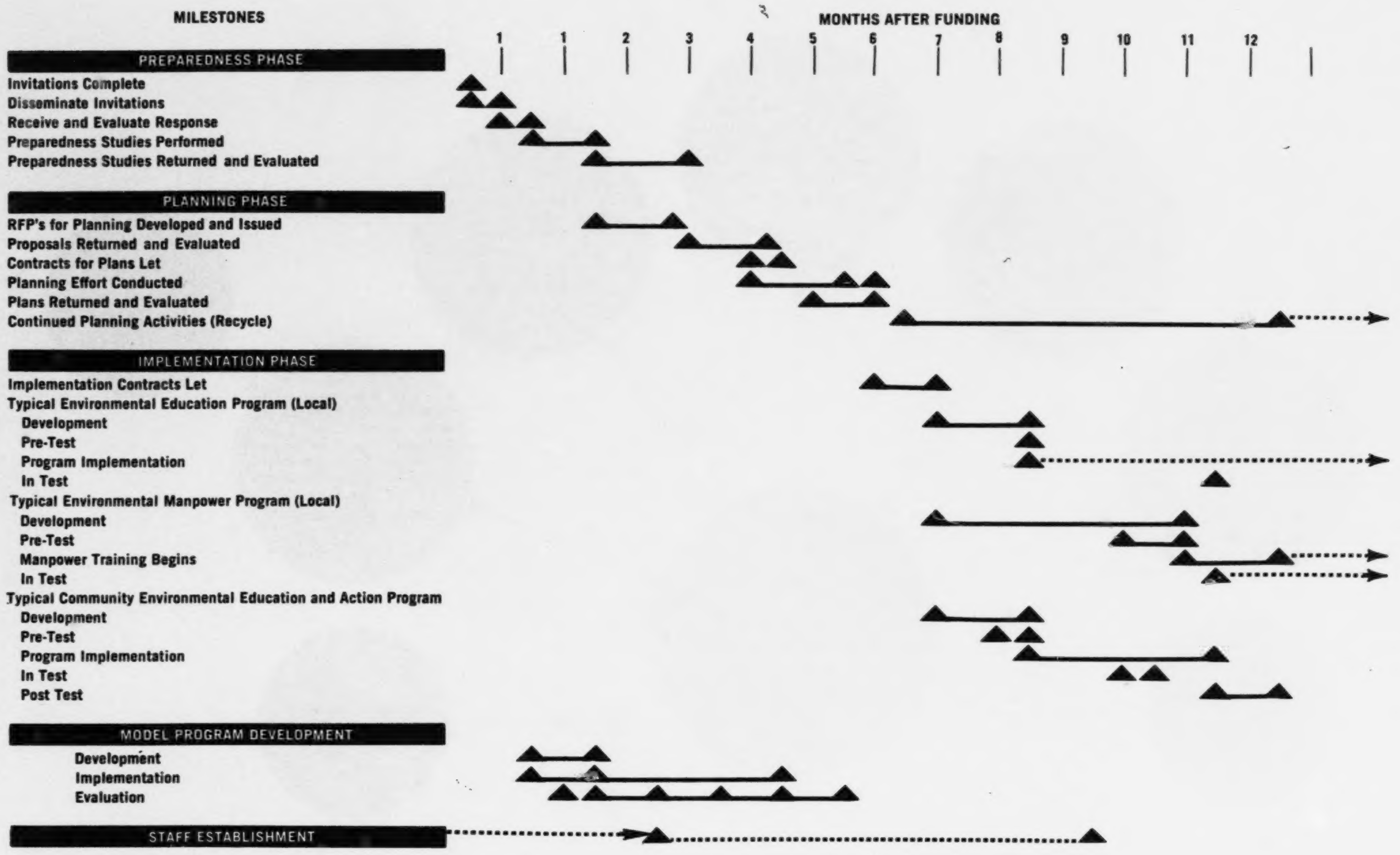
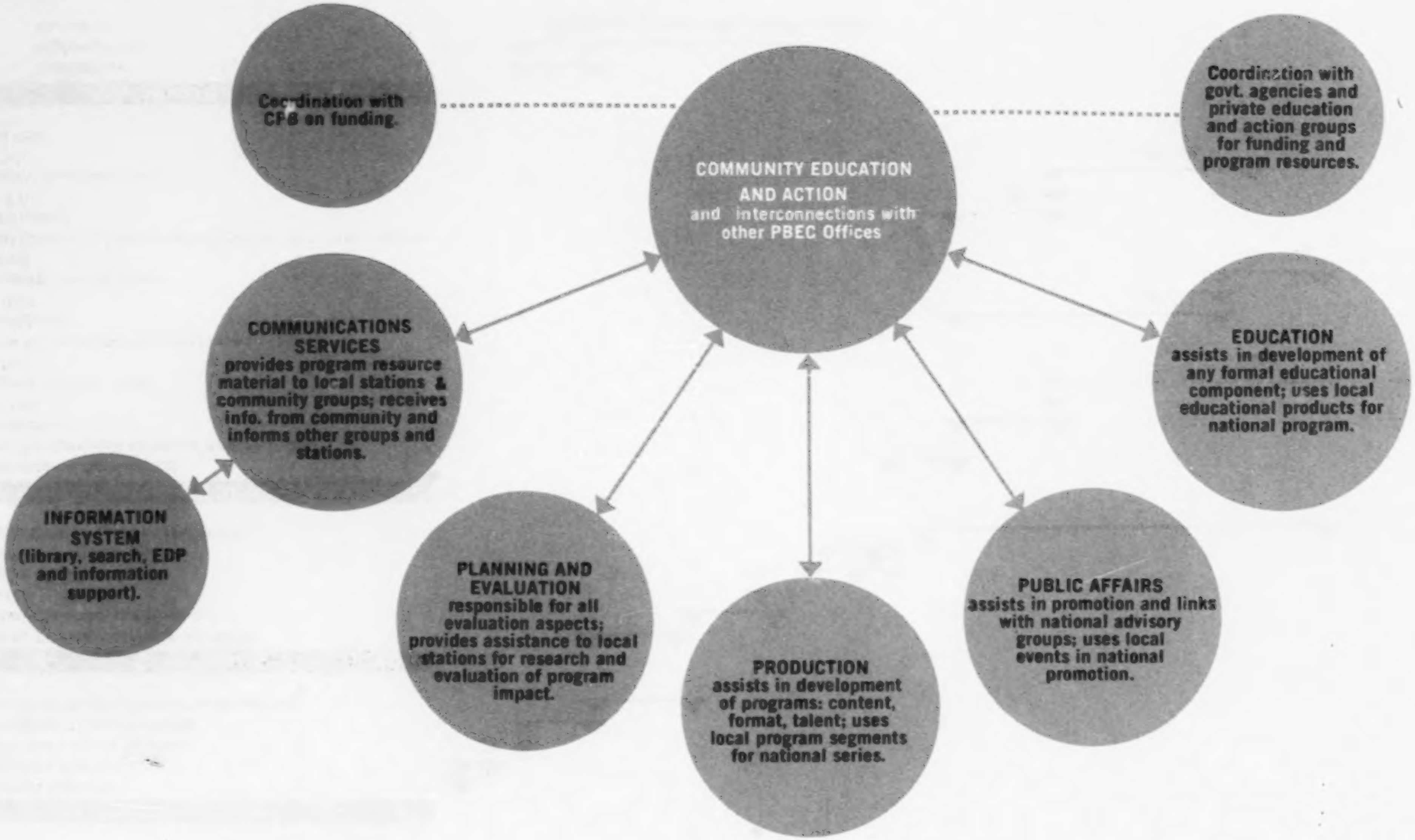


FIG. 2
COMMUNITY EDUCATION AND ACTION PROGRAMS


Coordination with CPB on funding.
COMMUNITY EDUCATION AND ACTION and interconnections with other PBEC Offices
Coordination with govt. agencies and private education and action groups for funding and program resources.
COMMUNICATIONS SERVICES provides program resource material to local stations & community groups; receives info. from community and informs other groups and stations.
EDUCATION assists in development of any formal educational component; uses local educational products for national program.
INFORMATION SYSTEM (library, search, EDP and information support).
PLANNING AND EVALUATION responsible for all evaluation aspects; provides assistance to local stations for research and evaluation of program impact.
PRODUCTION assists in development of programs: content, format, talent; uses local program segments for national series.
PUBLIC AFFAIRS assists in promotion and links with national advisory groups; uses local events in national promotion.

REFERENCES

In addition to the many reports and papers included in the Exhibits to the Appendices, the following references have been used in the preparation of this report.

1. "The Alternate Media - Guerrillas," C. Aaron, p. 50, New York Magazine, October 19, 1970.

2. Analyzing the Use of Technology to Upgrade Education in a Developing Country, M. Carpenter, L. Chesler, H. Dordick, S. Haggart, The Rand Corporation Memorandum RM-6196-RC, Santa Monica, Cal., March 1970.

3. The Arts as Agents of Social Change, M. Roman, prepared for U.S. Office of Education Conference on the Role of the Arts in Meeting the Social and Educational Needs of the Disadvantaged, Washington, D.C., Nov. 15-19, 1966.

4. "Blacks Challenge the Airways," P. Garland, p.35, Ebony Magazine, November 1970.

5. Broadcasting and Social Action, A Handbook for Station Executives, the Editors of Educational Broadcasting Review, National Association of Educational Broadcasters, Washington, D.C., November 1969.

6. Cable Television: Opportunities and Problems in Local Program Organization, N.E. Feldman, The Rand Corporation, Memorandum RI-570-FF, Santa Monica, Cal., Sept. 1970.

7. The Carnegie Commission Report: Public Television, A Program for Action, New York, 1967.

8. Community Action for Environmental Quality, the Citizens Advisory Committee on Environmental Quality, Washington, D.C., 1970.

9. "Computers: Hardware of Democracy," H. Henderson, Forum 70, Vol. 2, p. 22, February 1970.

10. "The People Speak on Hunger and Malnutrition," A Report to the President, Corporation for Public Broadcasting, Washington, D.C., January 26, 1970.

11. Environmental Health Problems, U.S. Department of Health, Education and Welfare, Washington, D.C., 1970.

12. The New Communication Technology and For What?, H.S. Dordick, The Rand Corporation, Santa Monica, Cal., May 1968.

13. A Rationale for "Two-Way" Television, Richard Holcomb, Director of Citizen Services, Corporation for Public Broadcasting, Washington, D.C., 1970 (Unpublished paper).

14. A Report on Information, Government, and Three-Dimensional Communication (An Adaptation of Fogo), Colin A. Low for the Office of Economic Opportunity.

15. Telecommunications and Urban Development, H.S. Dordick, G. Chesler, S.I. Firstman, R. Bretz, The Rand Corporation, Memorandum RM-6069-RC, Santa Monica, Cal., July 1969.

16. Televised Ombudsman, K. Archibald,and B. Bagdikian The Rand Corporation, Santa Monica, Cal., May 1968.

17. Television and Ghetto Education: The Chicago Schools' Approach, R. Bretz, The Rand Corporation, Santa Monica, Cal., June 1968.

18. Your Right to Clean Air, A Manual for Citizen Action, The Conservation Foundation, Washington, D.C., Aug. 1970.

EXHIBIT INDEX

EXHIBIT INDEX

Exhibits to the PBEC Report accompany the Report as separate documents, unless marked "attached," in which case they follow immediately the Appendix section to which they apply.

I. SURVEYS

1. Public Television and Radio Stations and the Environment - Report of the National Association of Educational Broadcasters to PBEC, November 1970.
    a. PBEC Environment Survey (Radio); Some Observations -- memorandum submitted by K. Clark to NAEB, 10/21/70.
    b. Public Broadcasting Survey of National Program Sources. PBEC Staff Paper, November 1970.
    c. International Broadcasting Survey of Environmental Programming. Compiled by NAEB, November 1970.
2. Commercial Broadcasting and the Environment - PBEC consultant report compiled with the assistance of the National Association of Broadcasters and Christine Hobbs, Consultant, November 1970.
3. 8 and 16mm Films on the Environment - PBEC consultant report by K. Lasky, November 1970.
4. Environmental Education, 1970: A Summary Report on the State of the Art, Pre-School to College - PBEC consultant report by C.E. Roth, October 1970.
5. International Environmental Education - PBEC consultant report by Ruben S. Brown, October 1970.
6. The Environment: Priorities for Communications - PBEC consultant report by T.W. Wilson, Jr., September 1970.

7. Survey of Environmental Activities of Selected Organizations - Report IRT-R-41 for PBEC, International Research and Technology Corporation, Washington, D.C., October 1970.

8. Environmental Education Activities of the ERIC Clearinghouse - PBEC staff paper on visit to ERIC Center, Ohio State University, October 1970.

9. Resources for Science & Art Education - PBEC staff paper, October 1970.

10. Resources in Higher Education - PBEC staff paper, October 1970.

11. Environmental Education: Social Studies Sources and Approaches - A Paper for the ERIC Clearinghouse for Social Science Education; Review Series # 1, ED 042-06, 43 pp, by a PBEC staff member.

12. The Need for Educational Programs That Foster Awareness of the Integrity of the Universe and the Man-Made Environment - PBEC consultant report by G. Weissberg, November 1970.

13. International Environmental Resources - PBEC staff paper, October 1970.

14. A Survey of International Environmental Education - PBEC staff paper, August 1970.

15. A Review of International Environmental Priorities - PBEC staff paper, August 1970.

II. INFORMATION SERVICES

16. Survey of Environmental and Ecological Information Sources - PBEC staff report. (Attached - Appendix II)

17. A. Directories, other publications listing sources of scientific and environmental information - staff report.

    B. Examples of information sources - staff report.

    C. New and proposed organizations concerned with collection of environmental/ecological information - staff report.

    D. Library materials collected by PBEC by end of Phase I - staff report. (All attached - Appendix II)

III. ADVISORY BODIES

18. Advisory Council: Account of First Meeting, October 2, 1970 (Attached - Appendix III)

19. Advisory Council: Account of Second Meeting, November 13, 1970 (Attached - Appendix III)

20. Planning Advisory Committee: Account of Two Workshops and Agendas for Each (Attached - Appendix III)

21. Environment Subcommittee of the Corporation for Public Broadcasting Advisory Committee of National Organizations, List of Members and Example of Letter, October 29, 1970. (Attached - Appendix III)

IV. TARGET AUDIENCE CHARACTERIZATION

22. A Survey of Public Attitudes Toward Urban Problems and Toward the Impact of Scientific and Technical Developments, Louis Harris and Associates, Study #2044, November 1970.

    a. National Public Television Audience Questionnaire on "Quality of Life" - Questionnaire used in Harris Study #2044.

    b. Summary of PTV Audience Survey - Summary of findings of Harris survey. (Attached - Appendix IV)

23. PBEC "Concerned Citizens" "Quality of Life" Survey - a survey of 45,000 persons concerning their environmental activities and attitudes, conducted for PBEC by Environmental Resources Inc., Washington, D.C., September - November 1970.

    a. "Concerned Citizens" Survey Questionnaire.

    b. Summary of PBEC "Concerned Citizens" Survey on "Quality of Life" - Environmental Resources Inc. (Attached - Appendix IV)

V. PROJECT OBJECTIVES

No Exhibits

VI. ADMINISTRATION

A. Management System.

1. Planning

24. A Plan for the Public Broadcasting Environment Center for the Period 1970-1975 - PBEC staff report, November 1970. (Attached Appendix VI A.1)

2. External Evaluation

25. Measuring the Effects of PBEC Programming - A plan by Mathematica Inc., Arlington, Va, October 1970.

26. Media Models: A Survey - Mathematica, October 1970.

27. Quality of Life Issues and Indicators - Mathematica, Inc., October 1970

28. Possible PBEC Objective - Oriented Products - Mathematica, Inc., October 1970.

3. Management Control and Internal Evaluation

29. Preliminary Control Elements, with Charts - PBEC consultant report, November 1970. (Attached - Appendix VI A.3).

B. Organization and Staffing

30. Organization Chart, Phase 1 (attached to Appendix VI)

31. Organization Chart, Phase II (attached to Appendix VI)

C. Administrative Policies and Procedures

32. Time Reporting Form - (Attached)
33. Employee Expense Account - (Attached)
34. Consultant Agreement (Attached)
35. PBEC Staff Policies & Benefits Booklet
36. PBEC Ethical Conduct Statement (Attached)
37. PBEC Equal Employment Opportunity Statement (Attached)
(All with Appendix VI.C)

VII. PRODUCTION OF PROGRAMS

38. Production Sources: Report on Television Production Sources Within Public and Commercial Television Industries and Among Outside Production Agencies - A PBEC consultant report, October 1970. (Attached - Appendix VII).

VIII. COMMUNICATIONS

No Exhibits

IX. MANPOWER TRAINING AND COORDINATION

(See Appendix XI, Models for Environmental Action)

X. ENVIRONMENTAL EDUCATION

39. PBEC Staff Papers, Surveys and Sources:

   a. Potential Pathways materials.

   b. Sample Relationships of Learning Objectives and Environmental Education Components

   c. Principle Curriculum Study Groups, Pre-College Education in Science

   d. Useful Environmental Education Programs, Materials and References

   e. Some Survey Sources

   f. Basic Organization

   g. An Overview Bibliography for Environmental Education for the Future

   h. Estimates of Educational Television Audiences, 1965, 1966.

   i. Equipment/Media Relationships and Considerations.

XI. ENVIRONMENTAL ACTION

Models developed for PBEC to illustrate the utilization of public broadcasting in specific communities:

40. The Utilization of the Public Broadcast Media as a Resource to Further Environmental Education in a Black Urban Community - Model submitted by the Frederick Douglass United Community Center, Inc., Washington, D. C., November 1970.

41. Broadcasting to Preserve a Midwest Environmental Frontier - Model submitted by the Iowa Educational Broadcasting Network, Des Moines, Iowa, October 15, 1970.

42. Public Service Proposal for Environmental Education Utilizing Citizen Involvement - Model submitted by WSKG-TV, Binghamton, New York, November 1970.

43. A Community Searches for Its Identity: A Proposed Environmental/Ecological Education and Community Action Program Model - Model submitted by the Community of Pueblo, Colorado and KTSC-TV, Pueblo, Colorado, October 21, 1970.

44. Center for Environmental Communications for the New York Area - Model submitted by WNET, New York, November 3, 1970.

45. The Puget Sound Coalition Environmental Action Program -

    a. Operational Plan for the Puget Sound Coalition - Model submitted by Puget Sound Coalition, Seattle, Washington, July 1970.

    b. The Future of Puget Sound: A Design for Environmental Quality through Community Involvement - A proposal for Discussion Group Management for the Puget Sound Coalition Project, R. Feringer, Western Washington State College, Bellingham, Washington - Model submitted by the Puget Sound Coalition, Seattle, Washington, November 1970.

    c. Quality of Life Action Manual - Submitted by the Puget Sound Coalition, Seattle, Washington, October 1970.

    d. Interim Reports and Related Materials; Evaluation, Research and Development of Action Follow-Up of Puget Sound Coalition Program - submitted by George Nelson Associates, Minneapolis, Minnesota, November 5, 1970.

46. Children's Television Project - proposal submitted to PBEC by KERA-TV, Dallas, Texas, October 28, 1970.

Other exhibits related to models for environmental broadcast programs.

47. Correspondence from WWVU-TV, University of West Virginia, Morgantown, West Virginia, October 27, 1970.

48. The Public Broadcasting Task Force for Environmental Education, Correspondence from Chapel Hill, North Carolina, October 28, 1970.

49. Strategy for Survival - Final report on environmental series from WITF-TV, Hershey, Pennsylvania, July 1970.

50. Quality of Life, A Rationale, PBEC working paper prepared by the staff of WITF-TV, Hershey, Pennsylvania, October 5, 1970.

51. Correspondence from WJCT-TV's Executive Vice President, Jacksonville, Florida, October 1970.

52. Correspondence, from WQED's Vice President, Pittsburgh, Pennsylvania, September 18, 1970.

53. Correspondence from the Executive Director of the Maryland Center for Public Broadcasting, Owings Mill, Maryland, September 1, 1970.

54. Correspondence from radio station WSMR-FM, Mad River Township, Ohio, requesting assistance in developing series on environmental action, November 17, 1970.

55. Description of Operation Environmental Improvement - Model Cities Program, Washington, D. C., September 1970.

56. Correspondence and Memoranda from Dr. C. H. Stevens, Sloan School of Management, M.I.T., Cambridge, Massachusetts, re: "Interactive Media for PBEC" September 28, 1970.

Exhibits illustrating community public broadcasting programming involving community projects:

57. Drugs in Western Pennsylvania, A Proposal for Community Mobilization by Public Television Station WQED - Model submitted by WQED-TV, Pittsburgh, Pennsylvania, November 1970.

58. A Time to Act, A Report on a Community Program - Model submitted by WITF-TV Hershey, Pennsylvania, 1968.

59. Is Religion Obsolete? A Design for Community Dialogue - Discussion Manual submitted by WITF-TV, Hershey, Pennsylvania, 1969

60. Sons and Daughters - Discussion Manual submitted by WITF-TV, Hershey, Pennsylvania, 1967.

61. The Turned-On Crisis, The Western Pennsylvania Drug Information and Action Project - Discussion Kit submitted by WQED, Pittsburgh, Pennsylvania, 1970.

62. The People Speak on Hunger and Malnutrition - A report to the President, submitted by the Corporation for Public Broadcasting, Washington, D. C., January 26, 1970.

Reports and Papers by PBEC Consultants:

63. Summary Report of Visit to PBEC by Dr. Daniel M. Fox, Organization for Social and Technical Innovation (OSTI), Cambridge, Massachusetts - PBEC staff report, November 1970, concerns the state of the art in community action and evaluation models.

64. Memorandum by Dr. Daniel M. Fox, OSTI, Cambridge, Massachusetts. Possible Relationships of Community and Regional Health Programs to Environmental Action, September 1970.

65. Examples of Coordination Between PBEC and Community Organizations Energized by Environment Center - PBEC consultant report by G. Weissberg, October 27, 1970.

Other Papers and References:

66. Strategies for Managing Resources through Eco-Action - Paper by Nancy Ayers, Executive Director, Susquehanna Environmental Education Association, Endwell, New York, October 1970.

67. Providing Environmental Literacy Through Television (PELT) - Report for PBEC on an Eight State Environmental - ETV Institute by the Federation of Rocky Mountain States, Inc., Denver, Colorado, August 1970.

67 (a) Evaluation of the PELT Workshop - Report for PBEC by BM&M Associates, Coral Gables, Florida, September 1970.

68. Environmental Action Programs and the Importance to PBEC Operations - PBEC Staff Report, October 10, 1970.

69. West Babylon Environmental Communication In-Service Institute, the University of the State of New York, Bureau of In-Service Education, November 1970.

70. Evaluation of Proposals for Environmental Education Councils, a paper to the American Academy of Arts and Sciences - Education Commission, by Nancy Ayers.

Cable Television

71. Visit to National Cable Television Association - PBEC memorandum, September 1970.

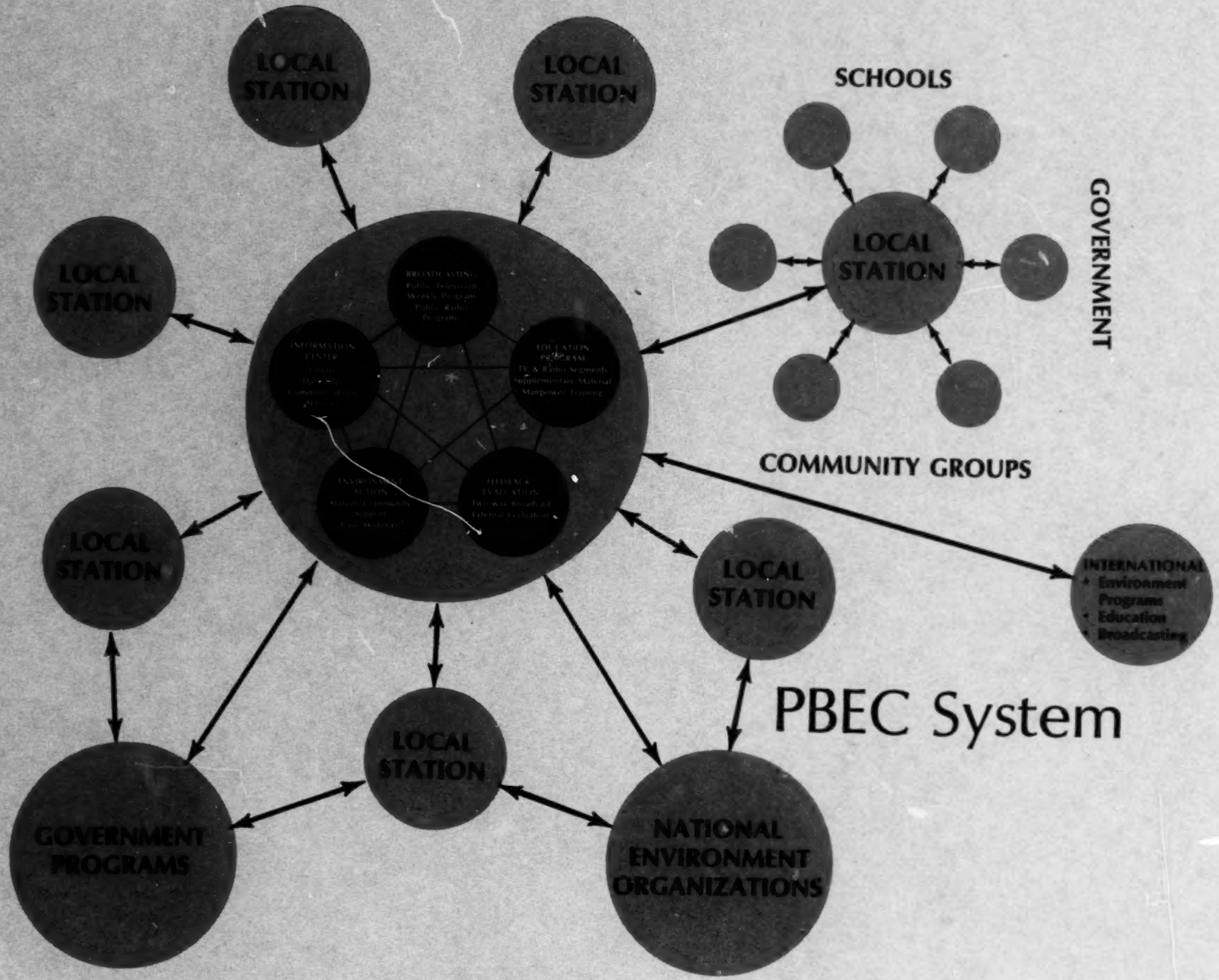
72. Cable Television - Notes and Recommendations - PBEC memorandum, October 1970.

International Activity

73. Possible International Efforts of PBEC and Possible Funding Sources - PBEC memoranda, June 1970.

74. A Whole Earth Program, proposal submitted by Earthrise, Inc., Ottowa, Canada, November 1970.

PBEC System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SCHOOLS
GOVERNMENT
COMMUNITY GROUPS
BROADCASTING
Public Television Weekly Program
Public Radio Program
EDUCATION PROGRAM
TV & Radio Segments
Supplementary Material
Manpower Training
FEEDBACK/EVALUATION
Two-way Broadcast
External Evaluation
ENVIRONMENT ACTION
Station/Community Support
Case Histories
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